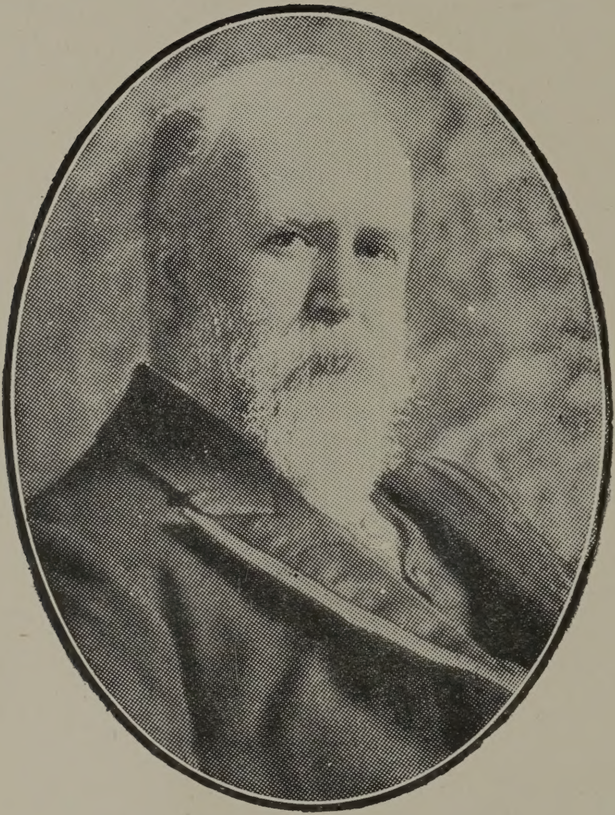
18.
cp.

107 H

22102365052

Med
K26131

LIBRARY OF THE
BRITISH MEDICAL ASSOCIATION
PRESENTED
BY THE EDITOR OF
B. M. J.



SIR WILLIAM HODGSON.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION
PRESENTED
BY THE EDITOR OF
B. M. J.

IN HONORE

GVLIELMI HODGSON

EQVITIS MEDICIQVE, HIC LIBER: QVI, MVNIORVM STVDIOSISSIMVS, NON AEGRIS SOLVM SED ETIAM CIVIBVS SVIS HVIVS COMITATVS PRAECLARISSIMI, PALATINI CESTRIENSIS, CVIVS IAMPRIDEM EX OMNIVM SENTENTIA PRINCEPS EST, QVINQVAGINTA ANNOS SERVIIT.

REBVS PVBLICIS ADMINISTRANDIS MENTEM MEDICAM TANQVAM TACTV ERVDITO ADHIBVIT, VNDE FIT VT SCIENTIAM EXIMIAM ET HOMINVM ET OMNIVM RERVM DE QVIBVS IN CVRIA AGITVR, CONSECVTVS SIT.

PRAECIPVE IVVENTVTEM, QVASI HORTVM, MIRE COLVIT, QVO STVDIO, — PER QVOT ANNOS! — IVVENES CESTRIENSES, CEV SVRCVLI EDVCATI, AD LAETAM MATVRITATEM PERVENIVNT.

INGENIO FORTIS, IMPETV AVDAX, REPVLSAE INSCIVS, COLLOQVIO DISERTISSIMVS, VICTOR MAGNANIMVS, CONSILIO PRVDENTISSIMVS, IAMDIV PRO HOMINVM ET MORVM LIBERTATE MOLITVR.

IN PRIMIS MEDICI, SODALES EIVS, COGNOSCVNT QVANTA VIRTVTE ET DILIGENTIA LIBERTATI, (QVA SOLA ARS MEDICINAE DIVINA FLORERE POTEST), STVDVERIT.

AD SENECTVTEM VIRIDEM, SEMPER FELIX, DIVTISSIME VIVAT.

MACCLESFIELD:
Printed by
Macclesfield Times, Limited,
7, Queen Victoria Street.

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No.

Preface.

May, 1934.

Sir William Hodgson, Chairman of the County Council and of the Panel Committee, reaches the ripe old age of 80 on the 13th May of this year. He is still in practice and on the Cheshire Panel. The fact that, after more than half a century he is in harness and occupying these positions should, it was thought, be recognised in some way by the Medical profession of the County.

With this in view it was decided to prepare a brief account of his life and to compile a volume of clinical memoranda by Cheshire doctors. Such a book would be a Medical Cheshire Sheaf—Fasciculus Cestriensis—and might have more than an ephemeral interest as being typical of the state of Medicine in the County at this date, a state which Sir William has done so much to foster and encourage.

Everyone in the course of years of practice produces individual ideas and methods. These, tested and retested by further experience, eventuate here and there in developments and even discoveries which in some point or principle are new and original. Of the cream of this clinical wisdom this volume shews a dipping sample.

CONTENTS.

Portrait of Sir William Hodgson - - - - - - - i
Dedication - - - - - - - - - - - - - - - - - ii
Preface - - - - - - - - - - - - - - - - - - - iii
Sir William Hodgson—A Biographical Note - - - 1—47

CLINICAL MEMORANDA.

A key to the Authors' initials will be found at end of the book.

i. Timely Tracheotomy—H.L.P. - - - - - - - - 49
ii. A Country Doctor's Day—E.S.E. - - - - - - - 50—56
iii. Reflections on Remedies—E.B. - - - - - - - 56—60
iv. Notes on Some Simple Remedies—G.R.M. - - 60—67
v. Medical Experiences in 54 Years in the Profession —J.A.E.-J. - - - - - - - - - - - - - - 67—68
vi. Clinical Experiences of a Country Doctor—H.E.B. 69—71
vii. Retention of Urine: An Improvised Catheter —H.E.B. - - - - - - - - - - - - - - 71
viii. Removal of Beads from Children's Nostrils —R.T.T. - - - - - - - - - - - - - - - 72
ix. Ether—G.O. - - - - - - - - - - - - - - - 72—73
x. A Medical "Cavalcade"—H.W.N. - - - - - - 73—77
xi. The Method of Detoxication by Thyroid and Manganese—H.W.N. - - - - - - - - - 77—82
xii. The Clinical Value of Basal Metabolism Measurements—T.G. - - - - - - - - - - - - - 82—95
xiii. The Reticulo-endothelial System with Special Reference to the Spleen—R.H.M. - - - - 96—102
xiv. Notes on the Early Diagnosis and Treatment of Pernicious Anaemia—J.W. - - - - - - - 103—108
xv. Rheumatic Infection in Children—R.H.G.H.D. - 108—110
xvi. Vaccine Treatment of Chronic Rheumatism— R.P. and A.C.G. - - - - - - - - - - - 110—113
xvii. Embolism following Toxic Myocarditis—J.B.H. - 113—114
xviii. The Medical Treatment of Graves Disease and Toxic Goitre and a Case of Diffuse Scleroderma—R.O. - - - - - - - - - - - - 114—115
xix. B. Coli Pyelitis, the Simulacrum of Miliary Tuberculosis—N.A.B. - - - - - - - - - - - 116
xx. Acute Appendicitis: Some Features of Its Symptomatology and Treatment—H.M.W. - - - 116—130
xxi. Hunger-Pain, Faintness and False Appetite— L.J.P. - - - - - - - - - - - - - - - - 130—136
xxii. Acute Anterior Poliomyelitis—A.V.S. - - - - 136—146
xxiii. The Action of Phenacetin in Broncho-Pneumonia W.N.L. - - - - - - - - - - - - - - - - 146—148
xxiv. Intramuscular Injections of Quinine in Lobar Pneumonia—W.R.J.G. - - - - - - - - - 148—149
xxv. "The Parable": A Case of Paramyoclonus Multiplex—E.C.G. - - - - - - - - - - - 149—150
xxvi. Case of Paramyoclonus Multiplex—J.B.H. - - 150—151
xxvii. Hæmophilia and Suppuration—J.B.M. - - - - 151—152

CONTENTS—(*continued*).

xxviii. Complete "Hysterical" Anaesthesia in a Man—R.A.N. - - - - - - - - - - - - - - - 152—154

xxix. A Method of Curing Malignant Tertian Fever, when there are Crescents in the Blood, by increasing doses of Arsenic—H.P. - - - 154—155

xxx. Phthisis: The Wide Outlook—A.A. - - - - - - 155—160

xxxi. A Point in Prognosis—R.T.T. - - - - - - - 160—161

xxxii. Twenty Years' Experience of Non-Pulmonary Tuberculosis at Leasowe Children's Hospital—T.H.M. - - - - - - - - - - - - 161—165

xxxiii. The Margin of Error in the Diagnosis of Advanced Pulmonary Tuberculosis based on a series of 306 post-mortem examinations, with particular emphasis on the possibility of the Pulmonary condition being due to Carcinoma—H.G.T. - - - - - - - - - - - - - - 116—168

xxxiv. Hilum Tuberculosis—D.J.G.J. - - - - - - - - 168—174

xxxv. The Place of Tuberculosis Settlement in the After-Care of Pulmonary Tuberculosis—E.R.S. - - 174—181

xxxvi. Alopecia Areata—R.T.T. - - - - - - - - - 181

xxxvii. Lupus Vulgaris—R.T.T. - - - - - - - - - - 181—182

xxxviii. Luke's Method for Carbuncles—L.J.P. - - - 182—183

xxxix. Ichthyosis, an Atavism—G.R. - - - - - - - 183—186

xl. About Conjunctivitis—T.M.B. - - - - - - - - 186—189

xli. Iritis and Glaucoma—J.W. - - - - - - - - 189—197

xlii. Familial Chronic Glaucoma—G.A. - - - - - - 197—201

xliii. Modern Conceptions in the Treatment of Retinal Detachment—O.M.D. - - - - - - - - - 201—209

xliv. Peritonsillar Abscess—G.A.M. - - - - - - - 209—212

xlv. Eczema of the External Auditory Meatus—R.T.T. - - - - - - - - - - - - - - - 212

xlvi. Abortive Treatment of Antral Disease—L.J.P. 213

xlvii. Acute Otitis—R.J.M. - - - - - - - - - - - 214—219

xlviii. Antivirus Therapy for Otitis Media—W.N.L. - - 219—221

xlix. Clinical Features of Mastoiditis—B.P.R. - - - 221—232

l. Some Notes on Intrinsic Carcinoma of the Larynx—V.L. - - - - - - - - - - - - - - - - 232—235

li. The Use of Calcium Gluconate in Obstetrics—M.J.M.MacL. - - - - - - - - - - - 235—237

lii. Streptococcic Vaccine in Puerperal Fever—J.P.L. 237—238

liii. Intra-Uterine Glycerine—J.G.W. - - - - - - - 238—241

liv. Ovarian Residue used in Midwifery—A.B. - - 242—243

lv. The Friedman Test for Pregnancy—G.S.S. - - 243—251

lvi. School Medical Inspection—G.H. - - - - - - - 251—253

lvii. The Doctor and the Mother—B.B. - - - - - - 253—256

lviii. Medicine and The Law—F.O.A. - - - - - - - 256—266

lix. Let the Patient Talk—N.A.B. - - - - - - - 266—267

lx. Research in General Practice—A Plea for the Study of Heredity in Man—J.S.M. - - - 267—272

lxi. A Note on Note Taking—W.N.L. - - - - - - 273—276

lxii. The Ambulance Teaching of Artificial Respiration—R.W. - - - - - - - - - - - - - - 276—277

lxiii. Rural Sanitation—S.W.F. - - - - - - - - - 277

lxiv. The Prevention of Epidemic Diphtheria—A.T.B. 278—282

lxv. The Growth of Public Hygiene—J.MacK. - - 282—287

179

PRESENTED
BY THE EXECUTORS

FASCICULUS CESTRIENSIS

IN HONOUR OF

Sir William Hodgson

Chairman at once of the
County Council and of the
Local Medical and Panel
Committees of the
Palatinate of
Chester.

LIBRARY
27 SEP 1935

Issued on the occasion of his 80th birthday,
13th May, 1934, by the
Panel Committee.

3291

14 735 411

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No. NB

Sir William Hodgson.

A Biographical Note.

THE place of Sir William's birth was a farm near Leeds. The date was 13th May, 1854. Though country born, he was not long country bred, for when he was five his father gave up the farming enterprise and, entering the business of his brothers, Messieurs Hodgson Bros., wholesale provision merchants, of Birkenhead and Chicago, set sail for America taking his family with him.

Chicago was thus the next scene in William Hodgson's life, and for nearly two years he attended school there.

When he was eight his father returned to Birkenhead, the family following later. They put to sea by the "China," sail and steam. The "steam" broke down, and the vessel had to depend on "sail" alone. She seems to have been blown far out of her course, for she was three months on the voyage and part of that time in the tropics. The family consisted of the mother, seven boys and one girl, William being the fifth child. The voyage, anxious for the mother, was a delight to the children. Sir William loved every moment of it, and he has never lost the friendship he formed for the sea.

But for the father, back at the Birkenhead business, the three months was a nightmare. Day after day he would go down to the shipping office: "No news of the 'China'." ! Though Sir William's father lived for thirty years after the reunion of the family, that agony of waiting for the overdue and presumed lost vessel had shaken him, aged him before his time.

Sir William owes much to his mother. She came from Northamptonshire; but, settled in Birkenhead on the return from America, she became notable in the public life of that place, a woman of leading and dominant character.

From their home to the ferry across the Mersey was a mile, and from the Liverpool landing stage to the Liverpool Institute another mile. The Institute was of high educational repute, but surely that daily journey to and from the school, afoot and by boat, was another educational influence on the boy.

The family were Baptists and for a time the choice of William Hodgson's profession hesitated between the pulpit and the doctor's gig. Though the latter claimed him, the former has lost an orator and a preacher—not quite lost, however, for as a local preacher "Dr. Hodgson" was for years certain to draw crowded congregations.

Medicine is still an art, but the acknowledgment of its basal sciences was not so generally recognised as now. 'Medicines of which they know little for bodies of which they know less' was the current jibe. It should not be true of William Hodgson ! En route for medicine he should be apprenticed to a chemist. Such was his father's decision. Unlike the apprenticeship of Sir James Mackenzie who "commenced chemist" with the intention of remaining one, Sir William's was only a stepping stone, and after six months he entered St. Thomas' Hospital as a medical student. But that six months gave Sir William an introduction to pharmacy and pharmacology very notable by contrast with the equipment with which a doctor to-day is turned out. His chairmanship of the Cheshire Drug Committee often evidences its permanence.

At St. Thomas' he came under the teaching of the great Barnes.

It is inevitable that the popular memories about great men should be hung upon material details; of Mendel upon his peas; of Lister upon his carbolic spray; of Mackenzie upon his polygraph. Barnes is remembered by his hydrostatic bag, and that as a discarded appliance. The great principles they taught survive detached from their names, embedded in the body of knowledge. Their skill, too often incommunicable, dies with them. Not so Barnes' skill. William Hodgson, apt pupil "to watch the master work and catch hints of the proper craft, tricks of the tool's true play," acquired the great obstetrician's very skill, and exercised it in his Crewe practice through those long years in which 200 to 300 confinements were conducted annually. There are women in Crewe who still recall his patience in those early days, how he would sit up at a confinement all night rather than hurry the natural course of labour. He was fortunate in a physical characteristic, his small obstetrician's hands. A placenta previa with a half-crown os seems to have had no terrors for him. Even after 50 years of practice he retains his interest in midwifery.

When, on an occasion later in his life, he was called upon to resist a proposal before the Insurance Committee to compel a panel doctor to attend the confinement of any woman on his panel, his mastery of midwifery was reflected in his speech. He pictured the woman putting her faith in a chosen adviser; he made his audience see her in the anticipatory months; then, dropping his voice, he came to her time of trial: was she to be denied then the services of that man in whom she had put her faith? He carried his point. The Committee itself acclaimed him and voted clean contrary to the way it was going before he rose to address it.

Leaving St. Thomas', he completed his medical education in Glasgow—where he was six months—Edinburgh and Dublin.

In Glasgow Lister was at work with his great antiseptic method and his carbolic spray. Thus we have one amongst us still who stood beside the very cradle of modern surgery.

In 1876 he took the qualification of Licentiate of the Royal College of Physicians of Ireland and also Licentiate of Midwifery. In 1880 he became a Licentiate of the Royal College of Surgeons of Glasgow.

But he took another degree as well, not credited to him now-a-days, that of M.D. conferred by a Dublin medical school. Some years after he had taken that qualification, Trinity College, Dublin, entered into a law suit with the school in question as to their competence to confer the degree—and won the suit. The recipients of the degree thus lost their right to use it. The years that have passed have faded the memories of that academic battle;

have seen the rise of the "Queen's University"; seen it change to the "Royal," and that change again to the "National University." But, at the time the blow fell on William Hodgson, it must have left its mark; that mark perhaps is that he values less than most men the guinea-stamp, though he is a better judge than most men of the true metal.

Qualified! What was to be the next step? An assistantship to Barnes? General practice? It seems he plunged into the latter. That a man of his powers should have done so is noteworthy. All his life he has recognised that general practice affords the widest scope for a doctor.

That he should have foregone the opportunity of further work with Barnes is perhaps the less surprising from two circumstances. Dr. Hodgson may have shrewdly realized that the great teacher's success rested more on his personal qualities than on his science, and that his vogue, then at its zenith, would rapidly wane. As in fact it did. By 1884 Barnes' great text book was already "found of little use." The other circumstance is Barnes' own strong views of the superiority of general practice. "Since diagnostic and therapeutical skill are inseparable," Barnes wrote, "so is he a hopeless specialist who consents to conduct a case a part of the way only, calling in a special surgeon to complete the treatment. To make a particular application of an old maxim, 'Curatio ostendit morbum,' it may be said that the surgical operation which crowns the treatment is often the most instructive element in the case. To abandon this source of knowledge is to contract at once the means of cultivating pathological knowledge, diagnostic power and therapeutic skill." Do we not hear to-day, in Sir William's championship of the wide range of practice which should remain the province of the G.P., echoes of Barnes' robust faith ?

A firm that owns cotton fields in the tropics and spinning and weaving mills in Lancashire speaks of its organization as vertical development. The spinner who buys his yarn from the broker and sells his product to the weaver develops his industry horizontally. Medical specialization is horizontal development, general practice vertical. From the cradle to the grave, in obstetrics, pedriatics, medicine, surgery, the general practitioner must be so far expert in each as to bear responsibility for his patient, and either perform the necessary services himself or ensure their provision.

Evidences of the width of William Hodgson's early training for this great office of family doctor upon which he embarked still abide with him. Besides his obstetric equipment, must be mentioned his range of treatment. Knowledge of his tools, clear cut decisions, tenacity in therapeutics are his medical characteristics. Take his attitude to phthisis. He believes in drugs and knows the value of creosote and pot. iod. in some stages of that disease, and of the thousand and one things a G.P. uses to shepherd his patients; but proof that Sir William also appreciates fully the modern conception of the control by laboratory methods, and the additional treatment by strict regime, collapse therapy, etc., is revealed by his judicious guidance and great encouragement in the development of the work at the Cheshire Joint Sanatorium.

Here is a side light on his grasp of pathology. A well-known alienist writes: "I can well remember my appointment as Assistant Medical Officer in

December, 1900, when I had almost three-quarters of an hour examination by Sir William in bacteriology. I thought I might have been sitting for my final.''

Sir William's practical knowledge of mental diseases is considerable: how acquired is another matter, difficult to assess, perhaps, developed at Upton during his years of public work for the asylum, but founded no doubt on his broad basic understanding of how the human mind works.

Such in short are his medical qualifications, the metal, not the guinea stamp!

With these qualifications, not of course yet come to full fruition, he sought a practice, and his choice first fell on one in Bucks. He had almost closed with the vendor when the old doctor asked him ''if he was Church of England.'' ''No,'' said Dr. Hodgson. ''Then you won't do for here,'' said the doctor—very honestly. The doctor explained that such were the clients of the practice that a practitioner who was not Church of England would not go down—and lost a purchaser for his practice. Dr. Hodgson admired that man.

Birkenhead was still the family home and his mother was in frail health. He wished to be near for such time as she needed him, and with this in view he bought Dr. Lord's practice in Crewe. It was not his intention to stay there long.

Dr. Lord's house was at the corner of Victoria Street and Gatefield Street [the house of Mr. Moss, the dentist] and for twelve years Dr. Hodgson rented it from the retired doctor.

In 1888 the latter put it up for sale, not at a reasonable 20 years' purchase but at a price which equalled the value of the house plus that already paid for the practice over again. The offer was declined.

Promptly he bought five cottages with good gardens opposite the Chetwode Arms, pulled them down and built his present home, Helmsville. That was forty-six years ago and the spot was then rural.

He kept the house in Victoria Street empty for the final year of his lease, placarded with: "Dr. Hodgson has removed to Hightown."

Almost at once after plunging into practice in Crewe he took part in public life. It is that that has kept him there. Only two years after he received his first professional diploma, and two before he took his second, he was to be found a Liberal candidate in the municipal election for the East Ward of Crewe. This was in 1878, only one year after the borough had received its charter of incorporation. He was not elected; but he received 432 votes to the 503 polled by the successful Conservative. He next stood for the West Ward, and polled 594 which gained him the second seat in the constituency. He was thus elected a town councillor in 1881—in 1887 he was re-elected without opposition—and so continued for 15 years, when the activities in a wider sphere compelled his resignation. His first fight—and he has had many—was "Intimidation in Crewe works." That heading filled the newspapers. He was a Liberal and he found that many of his political associates were being victimised.

In those times political feeling held sway. Political, industrial, social, as well as religious considerations were by no means kept separate. All these influences entered the shop and the office. The Chief Engineer of the L. & N.W. Railway, Mr. F. W. Webb, was a great man; how great, was only realized by a later generation. He was the inventor of the three-cylinder compound locomotive and of the Webb steel-sleeper permanent way. In 1882 Mr. Webb was in control of 15,345 men. He was the dictator of Crewe. He liked his men untainted by "advanced politics." He kept an eye on them. If they entered that troubled sphere they were liable to be reported to him and to lose their jobs. The thing was an open scandal.

The sittings of the Town Council were free to the public. Mr. Webb and Dr. Hodgson both were members; and a meeting approached at which Dr. Hodgson let it be known that he was going to "trounce Webb." The Council Chamber was packed with his supporters from the railway sheds. Dr. Hodgson was as good as his word, and the men cheered him to the echo. It must have been a great day.

His support of the men was not merely verbal. He and his friends were active in finding work for those who had been thrown out on account of their political loyalties. He was instrumental in securing some of them work, positions with the Corporation, for others places with the Weaver Navigation Trust and for others again work at the Horwich locomotive sheds of the L. & Y. Railway.

Crewe was aflame with the controversy, and London was watching. The Editor of a great

Metropolitan "daily" came and spent a week with Dr. Hodgson. The headlines hummed with "Crewe."

The great debate in the town council had been on 27th November, 1889. Dr. Hodgson had moved that a memorial be sent under the common seal to the general meeting of the L. & N.W. Railway Co. calling attention to the fact that the chief officials for years had influenced the employees into the belief that for them to be Liberals would jeopardise their prospects of employment. "The pith of the resolution," said the doctor, "was in the sentence:—'For nine long years the managers of the works and their subordinate foremen have been allied with the Tories of Crewe to crush Liberalism altogether out of the town.' That was a strong sentence," he continued, "he did not think that anything stronger than that memorial had ever been published in the town, and yet he thought it was not put half as strong as the facts of the case warranted." The week following Mr. Gladstone wrote to Mr. W. S. B. MacLaren, M.P. for the Crewe Division, who was then staying at Helmsville, as follows:—

"Dear Sir,—The case at Crewe, as it is set forth in your letter, and in the 'Crewe and Nantwich Chronicle,' is so scandalously bad that you must forgive me for saying that I am compelled to suspend my belief until I know what any such among the local officers of the London and North Western Railway Company as are included in the charge have to say upon it. They, the paid servants of a great commercial company, which is not, I apprehend, a Primrose League, are accused of allowing their own political opinions to weigh, and to weigh penally, in the employment and promotion of workmen; which if be true, is neither more nor less than a shameful malversation in a public trust. Such proceedings are bad enough, when unhappily any landlord or employer is tempted by selfish fanaticism 'to do what he will with his own,' so as to inflict suffering upon his fellow subjects. But when this is done by persons who are themselves only servants, against their fellow servants who happen to be a degree lower in the scale, when they do what they will, not with what is their own, but with what is not their own, either to indulge their passions, to promote their interests, or to propagate their opinions, their conduct is in the last degree shameful and unworthy. Therefore, as I have said, I suspend my opinion until these very grave and quite sufficiently particular allegations have been answered. Should there, however, be an apparent intention to withhold a reply, and should you consider it desirable, you will be quite at liberty to publish this letter.—Yours very faithfully,

W. E. GLADSTONE.

Hawarden, December 5th, 1889."

Dr. Hodgson used all his weapons. He was at them horse and foot. He had many family connections in great businesses at Birkenhead and elsewhere, who could give or divert from the L. & N.W. valuable business. He used his influence with them and they diverted the business. The Company was obliged to consider these unexpected results of its actions.

For many months the war continued and the Council Chamber and the newspapers were the chief battlefields. Some of Dr. Hodgson's supporters were men whose attendance in Council was curtailed by affairs in Manchester or elsewhere. There were times when to keep the debate open pending their arrival he would stay on his feet addressing the Chamber for hours, 3, 4 and even 5 hours at a time. When his oratory was exhausted he would read long passages more or less related to the matter in debate from volumes he had brought with him to the Council Chamber. He feared nothing—authority, not at all.

He then bought shares in the Company and attended at the annual meeting. His shares were enough to qualify him to speak. He electrified the sedate audience by setting out his views at length and forcibly. "Who is this?" it was whispered. "Is he a large shareholder?" When Sir Richard Moon, the chairman of the Company, rose and said "The previous speaker is the owner of —" stating Dr. Hodgson's modest holding, "My interest, on the other hand is represented by—" and here he named a great block of many thousands of shares, the laugh turned against Dr. Hodgson. He joined in it with high good humour. He had had a fine run for his money !

But his campaign won. The loss of freight frightened the Company. The intimidation ceased, and the disturbance and disaffection in the works with it.

Politics and his profession were not his only interests ; and his physique was reinforced by exercise. Not only did he ride his cobs on his country rounds—a fall and a broken arm spoiled that routine, however—but he was a fine tennis player, and for years was a Vice-President of the Lawn

Tennis Association; he was a good cricketer and played for the Crewe Club, and in the winter he was a keen pike fisher. He was notable, too, and in great request for his dancing of which, it seems, he was very fond. Finally for his voice, a mellow tenor, he was in request especially as a leader in oratorios.

Is not the newness of the growth of our public health organization brought home to us by the fact that Dr. Hodgson was the first chairman of the Crewe Public Health Committee? That was when he had been three eventful years a councillor in 1884.

Two of its earliest acts were to appoint for the first time a Medical Officer of Health and to found the Crewe Isolation Hospital. This latter Dr. Hodgson carried through in the teeth of popular opposition. In those early days the new committee, or at any rate its chairman, seems to have been called upon to perform duties properly belonging to the officials. What happened one September night, when a case of smallpox was taken to the fever hospital illustrates this. The Isolation Hospital was a small farm on the Minshull New Road. The caretaker and his wife, faithful to their sinecure only so long as it was one, bolted at the approach of danger. Nurses had been installed but the place being in those days isolated they declared they could not stay alone with the patient. Two of the nightsoil men, to their great credit, volunteered to sit up with them by turns. It was one of these that came running in the small hours to awaken Dr. Hodgson with the news that the patient had escaped. Hurrying back with the messenger, Dr. Hodgson gave chase and eventually rounded up his man in a cornfield. Unfortunately the patient's escapade cost him his life.

He developed a fatal pneumonia. And Dr. Hodgson took the smallpox. His recovery may fairly be associated with the circumstance that vaccination was made compulsory in 1853,—the year before Sir William's birth. It is probable that he retained a partial immunity from vaccination in his infancy.

During his convalescence, as a tribute to him, a band composed of working men paid him the compliment of playing outside his bedroom window.

The trade in ''slink'' meat, always profitable when the authorities have no alert inspectorate, in those days found a good market in Crewe. Dr. Hodgson was alive to the evil. With a vigour and to a degree which anticipated the conditions of to-day's bye-laws, he induced the authorities to make the game too difficult and too dangerous.

In 1889 the County Councils' Act came into force, and Dr. Hodgson was elected by Crewe as its member. He is now the only survivor of that first Council. Arrived in this larger sphere he very soon was in the thick of battle again. This time the scene was the Education Committee, and the subjects were Provided Schools and Religious Education. The fight raged for years. The county papers and the ''Manchester Guardian'' printed leader after leader on the subject.

Through this stormy period one of the protagonists on the other side was the late Canon Cawley Reid, a neighbour of his in Crewe. Their views were poles asunder, yet it was characteristic of them both that after years of public warfare they retained for each other the warmest personal regard.

Local government has remained Sir William's chief non-medical preoccupation; but from early days he was a local figure in politics themselves. He is a Liberal, wedded to the ideas of individual freedom and progress through parliamentary reform which attracted so large a following to that standard. His close friend was the Crewe M.P., Mr. MacLaren, who was a nephew of John Bright. He was thus in personal touch with one of the great influences of Liberal tradition. Mr. MacLaren's pied à terre in Crewe was Dr. Hodgson's house.

Dr. Hodgson's vigour was unbounded. For some two years he wrote the political notes for the "Crewe Chronicle." The present Editor of that paper was a boy at the time, and his father was Editor. It was often his task to go to Helmsville of a morning to fetch the article which Dr. Hodgson had sat up into the small hours to complete. Night was the time for writing—provided no night call interrupted the busy pen. Difficult midwifery, long country rounds in a Victoria or on horseback, an enormous industrial and town practice, the County Council meetings, and then the midnight oil,—it was a full life.

When in 1892 Dr. Hodgson became Mayor he was something of a popular hero. His mayoralty went with a swing. Success bred success. Life was bright then and times lively. A fancy dress ball which he gave was a sparkling event, long afterwards remembered in the town. And at the end of his term of office he received a civic presentation.

It was in the year of his mayoralty that the Technical Instruction Committee of the borough was formed, and Dr. Hodgson in its formation and right up to his retirement from the committee in 1903 was a leading spirit.

He was a Liberal: "The Liberal heart desireth liberal things." If the individual was to be free he must be worthy of his liberty: he must be educated. The education to be provided in Cheshire must profit by all the experience of Europe and America. The spectacle of a busy general practitioner of medicine spending his holidays in visits to the educational centres of the great European countries and of America so as to perfect his understanding of the department of County Council work which he had especially made his own will bring home to the reader the force and zest that actuates William Hodgson.

In pursuit of his studies he visited Russia and his enquiring mind sent him there on his usual round of investigations—with a startling result. He was arrested as a spy, and was only released after official explanation and reassurance and only then allowed to move about under rigid surveillance.

His zeal carried him in 1903 to the vice-chairmanship of the County Education Committee on its first formation and to the chairmanship in 1907, an office he held for fifteen years, and only resigned when he succeeded Sir George Dixon as chairman of the County Council.

During this period the whole of the present fabric of county education received at his hands its shape. Gaps had to be filled; the patchwork had to be unified. When new council schools were needed they were built; and the non-provided schools were brought into the council scheme. The latter was an achievement of diplomacy. On the one hand a high standard was imposed, costly to attain. The religious bodies hitherto responsible for these schools despaired of raising adequate funds. On the other hand the Education Committee offered a way out: let the schools join the county system, but keep the "right of entry" for their distinctive teaching. The defeated surrendered, but retained his sword.

The secondary as well as the elementary educational systems of the county are Sir William's work, and under his initiation new county secondary schools were erected in every suitable area. The old Grammar Schools were brought in and treated with sympathy and understanding. Agricultural education was fostered. At first a school of agriculture and horticulture was established at Holmes Chapel and was linked with the Manchester University; whilst at Worleston a training school for dairymaids, originally a semi-private institution, worked well. The fusion of these two lines of activity at Reaseheath Hall belongs to a later epoch of his life.

An extended visit to the U.S.A. in 1906-7 for the purpose of visiting every kind of educational institution may have been the seed bed from which sprang his conception of the Cheshire County Training College. It was at any rate his work, the product of his second year as chairman of the County Education Committee. Its new buildings at Crewe Green were finished in 1912.

Throughout the whole of this time of his preoccupation with schools he was an active member of the Education Committee of the County Councils'

Association, and also of its Advisory Education Committee. He believes in local government, but for that very reason he sees the necessity for local authorities, knowing the needs of their own areas, to join forces in representing them to the Government of the day. Statesmanship flowers best, broad rooted in the soil.

But his wider interests still left him time and zeal for his own place. In 1903 he was co-opted on the Crewe Higher Education Sub-Committee, which had been formed under the Education Act. He was elected chairman and so continued till his resignation in 1912; and in 1908 he was chosen chairman of the Governors of the Crewe County Secondary School, an office he still retains.

Another local interest is the Bench. He is a J.P. for the borough and also for the county, and chairman for twenty-seven years of the Licensing Justices of the borough. He seems never to have shirked the public work that flowed to him amidst preoccupations with his large practice that would have more than sufficed for the energies of most men. But the warp and weft of his life kept the pattern clear for all its complexity. He has the capacity to open his mind upon one problem, to engulf it, digest it, select its essence. So much came to him to be done, and he did it well—and unflinchingly.

The last mentioned office, chairman of the Licensing Justices, indeed called for unflinching courage. Pertinacity, too! When he was voted to that post he embarked on a troubled sea. The history of the voyage would need a volume, but this is the gist of it. Up to 1904 the licensing benches refused or granted licences at their discretion. There was one limitation of their powers. A beer-house that had been licensed before 1869 could not be refused a licence except on account of the personal unsuitability of the applicant or because the premises were in bad condition. Balfour's Act of 1904 put all public houses on a somewhat similar footing to that of the ante-1869 beer-houses. The licensing justices could only refuse a licence on the grounds of the personal unsuitability of the applicant, or because the premises had been badly conducted. If the bench found other reasons against granting the licence the matter had to be referred to Quarter Sessions and the question of compensation arose. Dr. Hodgson and the Crewe bench all along took the line that the licensee was personally responsible to them. Brewery companies might have a nominee who would be a licensee in name only, not a tenant renting the inn, selling the beer and taking the profits, but a wage-paid manager. Time and again the companies' Counsel would try to get the bench to define their criterion of a suitable licensee. In vain was the net spread. Dr. Hodgson was too wary. The Bench knew the law. The Bench might *think* that no man who would sign an agreement which virtually made him the servant of a brewery and put his profits per barrel at a level which left him no working margin of profit, *could* be "a fit and proper person" to hold a licence; but they did not say so. They insisted, instead, upon seeing the agreement; they modified it to their liking; they even inserted the prices at which it was agreed the beer should be sold. The actual form of agreement was included in the licence. But they enunciated no general criterion. Each applicant was licensed or refused on his own merits. The justices were courageous; but they were generally circumspect and acted strictly within their powers. The licensees were delighted. No longer could the breweries dismiss them on trivial pretexts. The new terms were almost a charter of freedom.

The results were good. The Crewe inns became models of orderly conduct, and drunkenness rare. The agreement entered into thus was found so satisfactory that it was quoted and became known in many works on Licensing as "the Crewe agreement." Many Licensing Benches up and down the country enforced it in their areas, to the material benefit of licensees. It is obvious, however, that great interests were involved. The steady action of the Crewe justices, also, based as it appeared to be on some consistent but unexpressed principle, did not seem to flow from the simple words of the Act. Times out of number the Licensing Session became a battle between some acute legal brains briefed for the breweries and the Bench. Well might the justices walk circumspectly. On one occasion Dr. Hodgson spoke a phrase in reviewing the whole batch of applications which, in dealing with the case of the particular one to which it referred, would have been privileged. The lawyers pounced. It was not, they claimed, a privileged utterance when spoken in the general review. A libel action was entered in the High Court against Dr. Hodgson for some words referring to the application for a licence for the Blue Cap Dog Hotel.

For Dr. Hodgson Mr. Rufus Isaacs (afterwards Lord Reading) led Mr. (now Sir John) Simon and Mr. Hugh Fraser, the eminent authority on libel law.

For the brewery company Sir Edward Carson appeared. Mr. Justice Ridley was the Judge. Carson spoke for two whole days. Mr. Rufus Isaacs, beside whom sat Dr. Hodgson, then arose. He began about the influence and financial might of the great brewery companies, how they could brush aside opposition and break almost any resistance; but, said he, placing his hand on Dr. Hodgson's shoulder, there is still in England one little champion who will stand up to them.—At this point the Judge broke in: "Oh, Mr. Isaacs, can't you cut out this sob stuff?" Sir Edward, who was on the other side of Isaacs, said semi-audibly—it was thought the Judge heard —"Take no notice of the damned fool! Go on!" These forensic enemies were personal friends.

The case did not go its full length. Mr. Isaacs learned through Sir Edward that, in the event of Dr. Hodgson's victory, the brewery would carry the case to Appeal. The costs, already very large—apart from Counsel there were, for instance, thirty or forty police witnesses from Cheshire—would have soared to colossal figures. The wisdom of Counsel prevailed. A disclaimer of intention to impugn the probity of the plaintiffs settled the business. Dr. Hodgson then found what it was to have friends. The costs were in the thousands, but he was not left to bear them single-handed.

The legal struggles about licensing have spread over a quarter of a century. The objective of the Bench during all these years was steadily pursued. The forces of the law which have been brought up against Dr. Hodgson, rank upon rank almost, have included many famous Counsel, some now Judges. None shook him, not even he of the most supreme aplomb, F. E. Smith. Upon one occasion, not long before that extraordinary man was called to the Woolsack, he was engaged at the Crewe Licensing Sessions, Dr. Hodgson in the chair. Some Counsel, not knowing his man, had adopted a dictatorial attitude. The chastisement from the chairman which he received was prompt, swift and vigorous. "F.E." was sitting quietly by the police superintendent in the second bench. Rising slowly to his full height, and leaning forward, hands in pockets, he defended the dignity of the bar. He spoke slowly and very courteously, his immaculate figure, and black oiled hair unruffled, his manner calm but intensely serious. Only that and the smouldering Romany eyes betokened that he was deeply stirred. "He objected," he said, "on behalf of the Law to the undignified manner in which his colleague was being treated. He associated himself with his colleague's position. If there was a repetition of this treatment he would leave the court."

"There's the door!" was Dr. Hodgson's terse reply, and F.E. sat down. It was given to few men to silence that unique advocate.

From 1893 to 1922 Dr. Hodgson was chairman of the County Mental Hospital at Upton by Chester. He is still ex-officio chairman. He first joined the Committee in 1889. The institution was already emerging from mediævalism to modernity. The "County Lunatic Asylum, Cheshire," of 1829, "for 45 patients of each sex," with its straw pillows and beds, horn cups and wooden spoons, waist bands of metal with locks, wrist bands ditto, its floors and walls with iron rings and chains, seems to have gone on with little change, except in numbers, till 1853.

It was eight years before that date that Lord Shaftsbury, having awakened the public conscience, had carried the Lunacy Bill to the Statute Book. The new Commissioners in 1853 reported unfavourably on Upton. So for the first time a resident doctor was appointed, and he, the very next year, reported that all forms of restraint had been entirely abolished. "Excursions were made into the lanes, accompanied by attendants," and "dances have been started, one each week till 9-30." Thus humanity had crept in and by the time Dr. Hodgson came the first phase of development had been accomplished.

For 60 years the place had been governed by "visiting justices," but in 1889 these "delivered up their charge," and Dr. Hodgson was one of the new "Committee of Visitors" which then took office.

It was his ambition to turn the institution from a place of care to a place of cure. However hopeless some cases, pathology might, if pursued, yield hopes for many. At his instigation in 1899 a whole time pathologist was engaged and a laboratory equipped. To-day there is a fine laboratory and the pathologist has two full-time assistants. Their work "permeates everything and has given an impetus to treatment which can never be arrested." Intestinal toxaemia and its influence on the mind, the malarial treatment of G.P.I. and many such lines of enquiry have received his sympathetic interest and support.

His mark is upon other sides of the hospital than pathology. The new theatre, the good housing of the nurses, the tubercle-free herd of cattle, hospital as well as lunacy training for the higher nursing grades and study leave for the staff all come from his initiative or advocacy. The great hospital with its fifteen hundred beds and two hundred and forty-nine nurses owes much to him.

In Mental Hospital work, as in other spheres, Sir William's influence has been centrifugal, has spread beyond Cheshire; for he was intimately associated with founding the Mental Hospitals Association, of which he became chairman.

Dr. Hodgson's association with National Health Insurance began in its earliest days. In the troubled times when its author was planning the launch of his revolutionary measure, and the personnel of the Commission that were to govern it was being selected, Dr. Hodgson was "sounded" in this connection. But his roots were too deep in Cheshire. He pictured himself déraciné, with every thread of his local interests broken, and felt that he would be of more value by abiding in his own place.

On the Panel Committee he represented Crewe, and till 1915 was Treasurer. He was, and still is, chairman of the Drug Committee, to which falls the spadework and detail; and on the 6th July, 1919, after the election of the new Local Medical and Panel Committees, long deferred by the war, he was elected vice-chairman. The chairman, Dr. J. H. Marsh, died in June, 1929, and in July Sir William was unanimously elected to that office, to which, after each subsequent election, he has been re-appointed.

Throughout, his preoccupation has been the status and liberty of the practitioner: witness this example (6th August, 1916).—Dr. Hodgson spoke eloquently on the undesirable and impolitic encroachment of public authorities on the field of medical practice. "It was not in the interests of the public themselves that the scope, influence and responsibilities of the general practitioners should be diminished or weakened. Such circulars as that recently issued by the Local Government Board on Venereal Diseases, suggesting as it did that only selected practitioners were fit to isolate a vein and inject salvarsan, pointed to the low estimate held in official circles of the competence of the ordinary doctor. Afore time the ordinary *barber* hung out his pole and was able to open the median basilic vein of his patients to prevent them having swelled heads, and now it had come to this! We are faced by a serious menace to the potentialities for utility of the profession caused by the undue influence and the ignorance of some favoured Medical Officers of Health." He then moved and the Committee resolved that a letter be sent to the Chairman of the Local Government Board, drawing his attention to the tendency to advocate the creation of administrative machinery and even curative agencies which will undertake duties hitherto the province of the general practitioner.

The campaign of the Government departments continued. In September the Insurance Commissioners issued a Memorandum upon a practitioner's duty towards a panel patient whose condition "needs specialist or consultant services." Hitherto in regard to Tuberculosis those duties towards the "expert are already explicitly defined in detail," but in regard to no other disease.

Inasmuch as other specialist services, besides the Tuberculosis service, would shortly be provided by public bodies, namely, for venereal diseases and for the medical and surgical treatment of disabled sailors and soldiers, "it is no longer possible to defer taking steps to define the relations of the panel doctor to the consultant or specialist made available by these new schemes." The B.M.A., claiming that they had succeeded in persuading the Commissioners to make the regulation more general, advised acceptance. "Everything should be done," it said, "to improve the quality and extend the range of the medical attendance given to insured persons."

In the Panel Committee there was a vigorous debate upon these matters. "Dr. Hodgson asked, with hauteur," so runs the minute, "Why thus belittle the service now rendered by general practitioners to their panel patients by referring to need for improvement of its quality? The regulation should be wholly opposed." These views were not a mere idle opinion. On the motion of Dr. Marsh and Dr. Hodgson they were sent to the Commissioners, the Committee "trusting that the Commissioners may see their way to withdraw" the regulation, because (1) it imposed new duties during the currency of an agreement, (2) it was unnecessary, inasmuch as practitioners do in fact take and have always taken means to see that their patients get any necessary special treatment, and (3) that the regulation would "arrest the sympathies and jettison the services of those general practitioners who both singly and in co-operation with their medical colleagues have fitted themselves by years of labour to carry out the higher and special forms —the more technical parts—of medical and surgical work; and that by so doing it will undermine and tend to degrade the present high standard of medical service. My committee,'' continued the secretary's letter,—which must be quoted because of the sequel—''which is of opinion that the existence of that standard is not appreciated by the Commission, cannot regard with favour a proposal which would render it incumbent on its constituents to consult with and hand over their patients for special treatment to medical officers of junior rank and recent experience in their speciality . . .''

This letter produced an invitation to send a deputation. It was accepted and on 26th October, 1916, three representatives went up to Whitehall. Dr. Hodgson reported to the next meeting of the Panel Committee that the deputation (consisting of Dr. Marsh, the Secretary and himself) ''received considerable enlightenment from its interview, lasting upwards of two hours, with Sir Robert Morant, Mr. Vivian and a Medical Official—two hours of close and fierce but amicable discussion.'' Dr. Hodgson, an old acquaintance of Sir Robert's, had opened the ball with a reference to the impending coalescence of the Insurance Commission with the Local Government Board (which eventually formed the Ministry of Health). ''You think, Sir Robert,'' he said, ''that you have nobbled the L.G.B.; but we believe they are swallowing you.'' Sir Robert Morant laughed at the thrust; but humour soon gave way to very straight talk, and neither side was left in doubt as to the views of the other. Sir Robert unbent; at first all urbanity, but when a new note was struck his tall figure was drawn up in his chair and his face shewed storm. Perhaps no man knew better the value in an interview of facial expression, and few had the same power of using it. The threatening brows could intimidate, the charming geniality could mislead. Dr. Hodgson was neither intimidated nor misled and the great Civil Servant and he extracted from the meeting—this: "When we got to close quarters" (continued Dr. Hodgson's report) "we found the Commissioners were as much against the L.G.B. Regulations as we are. The L.G.B. wants to be the 'brooding mother' of all the health agencies in the country." The Commissioners, he said, had really helped the profession to put forward local schemes for V.D. treatment, and in securing their acceptance by the L.G.B.

The Panel Committee, at the request of the County Council, had in September, 1916, drawn up a scheme for the treatment of V.D. in the county, to be carried out by the practitioners, salvarsan and laboratory facilities to be provided by the Council Council. The scheme was acceptable to the County Council, but the L.G.B. demurred, requiring proof by a practitioner of special experience or instruction before receiving free Salvarsan. Upon this Dr. Hodgson moved that the L.G.B. representative should be told "that the only way of seriously combating V.D. must be, essentially, through general medical practitioners, who are constantly in touch with the great majority of patients suffering from these complaints, and unless their services are freely and fully used, the unnecessarily elaborate regulations and restrictions as to treatment embodied in the memoranda and circulars of the L.G.B. will end in lamentable failure to make any serious impression on the prevalence of these diseases," and he went on to suggest the simple provision of Salvarsan and similar preparations for intra-muscular use, a method at that time advocated by Colonel Harrison. On 28th October, 1917, Dr. Hodgson, unable to attend the Panel Committee on account of illness, wrote that, though the County Council had endorsed the Panel Committee's scheme, "the L.G.B. had sent an unsympathetic reply; and his view is that the County Council should now proceed with its own scheme, which, though unsupported by the L.G.B. grant, will still be less expensive and more efficient than the elaborate L.G.B. scheme would be, the central feature of the scheme he advocates being the free distribution to doctors of Salvarsan substitutes suitable for intra-muscular injection."—It was not until April, 1918, that Dr. Hodgson was able to report "that the scheme was at last settled." Arsenobenzole compounds were to be supplied to general practitioners for intra-muscular injection to any applying doctor "provided he informed the County M.O.H. in writing that he was accustomed to their administration.—The statement was necessary to satisfy the L.G.B."! Some institutional treatment was also provided. [This arrangement continues to-day except that Arsenobenzole compounds for intra-venous use are now the rule.]

All this time Dr. Hodgson was the protagonist in other struggles for the profession. A resolution which he moved in the Panel Committee on 7th October, 1917, was the keynote of one of them: to place on the agenda of the Conference of Panel Committees the following motion: "that the Agreement between Insurance Committees and practitioners should be amended to ensure that when a practitioner is dissatisfied with the decision of the Commissioners he shall have the right of appeal to a Court of Law, or some medical court of arbitration where each party shall have the right of appearing by a legal representative.'' From that time onwards for years the impetus given by Dr. Hodgson to what came to be known as ''the Cheshire motion'' carried it through one annual conference after another. In the 1924 Conference it gained a foothold. ''We are the only body of men, '' Sir William cried, ''shut out from such privilege.'' It was referred to the I.A.C., and finally accepted in principle—but only to be shelved in a state of suspended animation whilst some departmental substitute for the appeal to the courts was ''tested out.''

Yet another struggle of those strenuous days :—The Panel Conference on October 18th, 1917, instructed the Insurance Acts Committee of the B.M.A. to negotiate with the Government a capitation fee of 10s. in place of the grossly inadequate 7s. then paid, and ''to organise the profession forthwith in furtherance of this object.'' The Cheshire Committee took this resolution to mean business.

It collected some 170 resignations from the panel and held them in readiness to hand in on headquarter instructions. But none came. Dr. Cox, the B.M.A. secretary, on the 7th November, in reply to an enquiry as to the date upon which resignations to be effective must be sent in, wrote ''. . . not later than 19th November,'' and continued, ''Surely the men in your area do not intend to withdraw from the panel pending the negotiations which the I.A.C. was deputed by the Conference to carry out.'' —But 'our men' did! After writing and wiring to the Commissioners to learn the terms upon which they would be asked to accept service in the following year, and getting from the Commissioners, upon the penultimate day (17th November) the illuminating reply that "the matter could not yet have reached a stage at which a reply to your telegraphic enquiry is possible," the Panel Committee handed the Clerk the resignations of 170 Cheshire doctors, Dr. Hodgson's amongst them. The covering letter said "the signatories are willing to accept service at the capitation rate of 10s." and should the I.A.C. negotiate a settlement satisfactory to the whole profession the signatories would accept it and withdraw their resignations. When the Clerk to the Cheshire I.C. (Mr. Phillips, *acting*), shewed the map of Cheshire dotted with a few red spots for the doctors who had not resigned and many black ones for those who had, to Sir Robert Morant, verily the thunder clouds were thick on his brow. He then and there dictated to the Clerk a letter to be sent to each doctor who had resigned arranging a *modus vivendi*, by which he would continue to serve pending the eventual settlement with the B.M.A. It is singular that the strange legal position thus created —service under a withdrawn agreement by these 170 doctors, Dr. Hodgson amongst them—lasted for years, in fact, till a new type of contract came up for general signature. There is no doubt that this isolated action by Cheshire had its effect in high places, and helped the eventual rise of the rate paid.

Dr. Hodgson served for a time on the Cheshire Insurance Committee, and on its Medical Service Sub-Committee, August, 1918. In October of that year he was nominated a candidate for the I.A.C., to represent Cheshire, Shropshire and North Wales group. His election address refers to the familiar points, inadequate pay, harassing clerical work, the appeal to the courts—"no body of men should be allowed to be judges in their own cause, which is the position of the Insurance Commissioners at the present time," and it strongly resists any development of a whole time salaried medical service under the (proposed) Ministry of Health. The election took place on November 1st. There were four candidates, and Dr. Hodgson was elected.

The following summer it was thought well in high places that outstanding questions between the panel and the Commissioners should be presented to the Cheshire and North Wales group by a personal conference. Dr. Cox, Secretary of the B.M.A., Dr. Smith Whitaker, then one of the Commissioners, and Dr. Meredith Richards came down to Chester for the purpose. It was a sweltering day, July 11th. The stage was set in the Town Hall Council Chamber. The three high officials occupied seats of judicial eminence. The well of the Chamber was quietly filled by the rank and file. Dr. Hodgson faced the three thrones and on either side of him were the Welshmen. There were stirrings before the storm. Dr. Meredith Richards spoke with charm, and was heard quietly and, by the Welshmen, with acceptance. Dr. Cox spoke with his usual air of blunt sanity, but not without heckling from Dr. Hodgson, which led to altercations between the latter and the Welshmen. Then Dr. Smith Whitaker levered himself up, and began upon the same theme as the others. That was to commend a new body of regulations to the panel. With his exquisite powers of logical English and of exposition he began to weave his spell—but the web of it was suddenly torn. Dr. Hodgson arose. Dr. Cox writes: "It was the first time I had heard Hodgson in full blast, so to speak, but he impressed me far more by his eloquence than by his arguments. Naturally, you will say, as he was against me! There was no doubt about the way in which he carried the meeting with him and I realised then why he had attained such a commanding position of influence in the local profession and in county matters." In the first gust of the storm the Welshmen, still under the charm of Dr. Meredith Richards, were vociferous, like a surging pack, against Dr. Hodgson. But he, far from standing at bay, took the offensive. What did not impress Dr. Cox, his arguments, caught and captured the meeting. That he should have quelled the tumult by his personality till he made them hear his telling reasons, reasons for rejecting all that the persons in high places had commended to them, seemed to be the accomplishment of an almost impossible feat. Not only did he achieve it, but the Welshmen who had at first resisted him, first one, then several, and then they all, began to take sides with him and at the end cheered him to the echo. A whole string of resolutions were passed exactly the reverse of the wishes of the three highly placed ones, beginning with this: "That the full payment of an adequate fee for our Panel services should be a prior condition to the negotiations for their extension." Dr. Hodgson, as the meeting broke up, was surrounded by a crowd of the warmhearted Welshmen shaking him by the hand.

But the incident, indicative as it was of one side of his view of the Insurance Act, was not so of the whole of it. The balanced attitude that he took is shown by a minute of only two months later date (September, 1919): "Dr. Hodgson considered that the influence of the Panel regulations"—not the *proposed* ones he had resisted—"has enormously improved the ease with which a doctor can conduct his practice."

His Majesty, on account of the long and arduous public services which stood to his record, bestowed upon him the honour of Knighthood at the end of 1920. That he should receive the accolade was very gratifying to his professional and County Council friends and, indeed, to all the County Palatine.

From 1921 to 1924 Sir William was deeply interested in the building and inception of the Cheshire Joint Sanatorium at Loggerheads, near Market Drayton, and of the whole Tuberculosis scheme of the County. In the Loggerheads venture it was "Sir William who was the mainspring," and he supported his technical adviser through thick and thin. "He realises," the latter writes, "that all our special methods are merely additional forms of treatment." This is characteristic of him. He sees medicine as a whole. He, like Barnes, thinks that that 'whole' is the doctor's province, and admits of no artificial subdivisions and barriers. But he is not only alive to the complexity and progress of various departments of medicine, he presses for their development. He flings himself into the problem of giving access to the public, at the public cost inevitably, to those new methods of cure and management which on grounds of cost can only be provided on a large scale organised basis.

But to the tendency—it was something more than a tendency—to staff the Tuberculosis Dispensaries with junior men of slight experience, he was opposed—"a budding Timothy" was his soubriquet for such an one—and at the Panel Committee on

29th May, 1921, he seconded a resolution by Dr. Watts (M.P. for South Manchester) that a long critical letter should be sent to the County Council. The letter placed the Loggerheads Sanatorium as the central feature of the County Tuberculosis scheme, and desired observation beds to be established in the Tuberculosis Pavilions connected with the various county isolation hospitals. "The Dispensaries can never provide a satisfactory consultant service," the letter continued, "You cannot attract men of matured hospital experience and standing for the salary that can be offered. You cannot "grow" such experience in an atmosphere in which the clinical element is too rarified and the administrative too toxic. It is the product of the hospital." The senior medical staff, amplified if necessary, of Loggerheads and Wrenbury are suggested in the letter to meet any real demand for consultants, and, for the examination of contacts, the family doctor.

The letter resulted in an invitation to a conference with the County Council, which took place on 21st September, 1921. Sir William was present as a County Councillor, but he was, of course, privy to, and in cordial agreement with, the memorandum of the Panel Committee's case.

The mills ground slowly: it was not until 6th of May, 1922, that the next step was taken. It was yet another conference, this time between Sir William with the late Dr. Charles Wilson as medical members of the County Council, and on the other side Dr. Marsh, Chairman of the Panel Committee, accompanied by the Secretary. Dr. Wilson started off: "The Tuberculosis scheme was working unsatisfactorily—once the patient goes to the Tuberculosis Officer, the G.P. loses touch with him. The legitimate duties of the G.P. had been filched away from him. The contacts should be examined by the family doctor." So far so good—all on the Panel Committee's side. But Sir William followed with the real difficulty. The total cost of the County Tuberculosis Scheme, he said, was £30,000, of which the Government grant was £16,000. "We could not do without that grant and this dispensary system was a condition of it. We must cut our coat according to our cloth." To this Dr. Marsh, in his downright way: "But, Sir William, we do not want the coat at all. The bait of 50 per cent. has induced schemes that have grown out of all proportion to the initial idea. We are not prepared quite to 'sack the lot,' but very nearly so. We have no feeling, but—I say quite candidly that the money the County has spent, tempted by this 50 per cent. bait, has been 75 per cent. wasted." Sir William thereupon replied for the County that he was disposed towards a favourable consideration of the views of the Panel Committee which, he requested, should be cast in the form of an organised scheme, stating the saving which would be realised by scrapping the Dispensary system, and the means to be substituted of carrying on the attack on Tuberculosis. The scheme thus requested was prepared and, on September 27, 1922, was discussed by the Panel Committee. One point was that the Local Health Authority should once again be responsible for the environment of tuberculous patients, and thus bring all the forces of local knowledge into play. The position was known to be difficult for Sir William. He was torn by two loyalties. Would he be wholehearted for the Panel Committee? Dr. Marsh would make the test! Rising with a dubious air, he began to speak in a way that at once riveted attention, it was so unaccustomed, for he pointed to the requirements of the Ministry as being exacting, to compliance being obligatory if the grant was to be earned, to the need of moving with changing times, sad though the changes were. He said that "Fevers" had gone from the G.P.'s province, and now he feared tuberculosis looked like going. Further, he feared the Tuberculosis Service, with its elaborate personnel, had come to oust permanently the well-meant activities of the District Councils. All the time Sir William got more restless; but Marsh continued in the same vein with clouded face, but, occasionally, with a quizzical eye on the Secretary. Then Sir William arose. The words of the minute, that he "warmly defended the scheme" hardly convey his devastating speech. " Restore the *status quo ante*," he said . . . "This is no new responsibility that it is suggested the Local Health Authorities should exercise. Existing Acts and Regulations give them all the powers they need, but they don't use them, and they won't use them so long as the Tuberculosis Service usurps their functions. And it does it over their heads and without their control. There is a lapse of supervision. The restoration of the Public Health Authority is, from the point of view of Local Government, far more important than anything else." Thereupon Dr. Marsh smilingly explained that his opposition was merely academic. He congratulated himself upon the fact that it had drawn from Sir William so spirited a defence of the policy, "with every word of which I agree!" Sir William joined in the laugh which greeted this admission of finesse with real enjoyment. And the sequel shewed him true to both loyalties.

August, 1924, found him still labouring the need for the revision of the Dispensaries. In a memorandum to the County Council he wrote: "Dispensaries and Sanatoria were never intended to displace any useful work for the treatment of tuberculosis which was already undertaken, but were intended to supplement and enlarge the general attack on this dreadful disease." And he went on to quote the West Riding Sub-Committee that "the general practitioner was intended to play a very important part in the organisation, and it was mainly the intention of the compilers of the Astor Report that the Dispensary building should not obscure his proper place in the scheme. This, however, is unfortunately what has occurred in the West Riding."

His influence secured reduction of redundant features of the scheme and access to real consultants. The 1929 legislation has, however, so altered the outlook of local government that the other aspirations of the Panel Committee await the future.

The Minutes bristle with Hodgson! A question arose, in September, 1922, of the value of remedial work. A doctor had ordered a girl, convalescent after a motor-cycle smash, to do little jobs at home so that she might sooner be fit to return to her proper work of serving in a shop. "No member is allowed to do any form of work when on the sick funds," she was cautioned by her Society. Sir William "cordially supported the contention that the inestimable value of remedial work must somehow be secured without injustice to the societies."*

In 1923 he represented Cheshire at the Conference of Panel Committees, taking with him a resolution he had carried at the home committee that any capitation fee less than the arbitration award of 1920, viz., 11s., is "less than adequate for the service rendered."

---

*The lesson of the Command Depôt of the war-time still awaits its peace-time application.

The Minister had offered 8s. for five years, or 8s. 6d. for three; and had refused arbitration point blank. Dr. Brackenbury at the conference said "Conflict was the condition precedent to the resumption of negotiations." The Conference agreed. (At that moment Cheshire had already collected the resignations of its panel). Sir William thought the moment ripe for adjustments in other than financial matters, "the abolition of intermediate certificates being a practicable reform. The multitude of minutiae which 'the official mind'"—a favourite phrase of his—"imposed on doctors was the source of their irritation and restlessness."

Once again the Cheshire Secretary was instructed, this time by and not despite of Dr. Cox, to hand in the resignations. Every one, numbering 364, had been collected (the last at midnight on the previous day). It was a clean sweep in Cheshire; and sufficiently thorough in the whole country. Wolverhampton and Ipswich alone, Sir William reported, had less than the necessary two-thirds majority of resignations. The general unanimity was sufficient to make the Minister "appreciate the importance of an amicable settlement." A new offer resulted, to wit, an impartial Royal Commission and 8s. 6d. for five years, *or* a Court of Enquiry.

At a special conference called in November ['23] the Insurance Acts Committee moved to accept the Court of Enquiry. Sir William, seconded by Dr. Greg, who represented London, moved an amendment to adjourn till after the general election. The I.A.C. view prevailed, and the Court issued its famous award of 9s. for three years upon 23rd January, 1934.

Meanwhile in Cheshire in the previous September there had been a strong effort by the Insurance Committee to place Medical Benefit on the so-called payment for work done system then obtaining in Manchester and Salford. A true system of that type is to some minds the ideal; but that obtaining in those places was a travesty of it, already discredited—and since abandoned! The "work done" payment was merely a fee per patient attended, arrived at by dividing the medical pool by the total numbers of actual patients. Endless labours and drastic discipline by the Panel Committees of these places were called for to "tax the costs" so to speak, to prune extravagant claims. At a joint meeting of the Cheshire Insurance and Panel Committees at which Mr. Lythgoe advocated the change, Sir William, "in a speech which was well heard and fully reported in the local press, repelled the arguments of the introducer. 'We are not prepared,' he said, 'to go into the details of the scheme, as the Insurance Committee seemed designed to make us do, before we have discussed the principles.' He complained of the way in which the profession had been slandered in speech and press by the Approved Society officials. He told the Insurance Committee flatly "you have not the ghost of a chance of getting this thing through in the face of our relentless opposition."

One of the charms of Sir William's speeches is that he leaves you in no doubt as to what he means! The Insurance Committee were in a dilemma. They had already *resolved* that the system should be adopted. Happily the date was not inserted in the deed! They decided to leave it blank and so it remains to this day.

It is a custom in Cheshire, agreed with the County Council, that the Panel Committee shall nominate the Medical Officers of the Child Welfare centres. In 1926 there was a movement to get more adequate pay for these. Sir William knew this would not be forthcoming. "There is great danger," he said, "that the appointments may lapse into the hands of the permanent officials. An animus against general practitioners was, he continued, occasionally disclosed by these public servants. The Ministry of Health with all its potentialities for good has also a corresponding capacity for the reverse. The bureaucratic chain was the official ideal and would ruin medicine. That ideal set up the Minister as the nodding mandarin for the County Medical Officers of Health, who nodded in consonance. All initiative would be gone! Bad as the ideal was, it would gain ground unless general practitioners gave a service so much prized that they could not be ousted. The child-welfare positions were a case in point. "Unless the heart is in the job the man is better out of it."

Sir William is a born advocate, and he is seen to advantage when defending a colleague. In 1927 the Ministry was concerned to check the rising cost of medicines and dispensing. Its officials selected the prescriptions of doctors whose costs were exceptional, for special examination, and some were penalised. Several such cases in Cheshire were not only under review but subject to enquiry. About one of these Sir William remarked: "The Ministry have not exceeded their duty in making the enquiry. On taking a general view of Dr. ——'s scripts there was an unusual amount of special prescribing that was not necessarily wrong or extravagant. It might be very good prescribing. A prescribing practitioner of high repute, such as the late Dr. Dobie, was accustomed to make use of long and complicated prescriptions. Dr. ——'s prescribing methods are of that type."

Again, defending a young practitioner: "He felt that this young man was obviously doing his best for his patients and giving them conscientious service. Also he was new to practice, and if he had erred at all in the direction of extravagance he had done so from the highest motive. But he had a good answer for almost every one of the criticisms. We should dismiss the case," said Sir William. "A monstrous offence would be committed if we should penalise this young man." But the Ministry penalised them all the same; other enquiries followed with the same result. The Insurance Committee was alarmed and a joint deputation of the I.C. and the Panel Committee went up to Whitehall in February, 1929, to interview the Ministry on the subject, Sir William being one of the deputation. "He drew the attention of the Department to the possible effect which the imposition of such heavy penalties would have on the prescribing of Insurance practitioners. Economy must accompany efficiency; but it was not easy to control public opinion and eliminate popular prejudices. It was undesirable that political capital should be made out of the cases then in question.

He was satisfied that in each case there was a very high standard of prescribing, and that no prescription which had come before them—and they had examined every one—had indicated that there was a general attitude of irresponsibility or casualness in prescribing; but he was satisfied that each practitioner had taken as his objective in prescribing the securing of an early and effective result in the treatment of his patient.'' To have secured such advocacy was some set off against the £20 fine which, despite it, the Minister imposed.

In September, 1930, the B.M.A. had published its proposals for a General Medical Service for the nation. ''The scheme,'' said Sir William, ''will set up a band of specialists. What is wanted is to preserve the right of the general practitioner to undertake for himself every variety of special work for which he is competent. I notice an enormous amount of work in this county alone which comes to the knowledge of the Drug Committee through the G.P. 45 forms. Take this last list we have had. If you go over that you will see that the G.P. has become a specialist and is certainly capable in almost every branch of surgery as well as medicine.'' Then, prompted by the remark of the late Dr. Manwaring-White that he would like to have seen a definite and *adequate* remuneration stated in the B.M.A. scheme, he spoke at large on the tendencies of the age:—''The word adequate is simply a pious opinion. The Chancellor of the Exchequer might consider 8s. or 8s. 6d. adequate. I don't think so much of the argument that the money can not be found. Recently £51,000,000, like a bolt from the blue, was added by the Chancellor of the Exchequer to the expenditure of this country. I am coming across some very extraordinary circumstances lately: families living, comfortably off, on dole and various payments to which the different members of the family or some of them have now-a-days a right. I am not impressed by the idea that the money (for a State Medical Service) cannot be found. The fact is people are taught 'Do not do for yourselves what you can get the State to do for you.' I think it a wrong procedure to turn a blind eye on the social changes that are taking place in planning our own development. What we ought to do is to consolidate the interests of the profession: real protection, the protection of the professional man in the conduct of his business is what is needed. These insidious proposals are all tending in a direction that changes and weakens the responsibility of the individual."

A minute of 30th April, 1926, reads that an apology for absence was received on behalf of Sir William Hodgson, "who is at sea." The sea has been the call and the recreation of his latter years. The love for it engendered by his early experience when the "steam" of s.s. "China" broke down and she had to depend on "sail" has never left him. It is said that the crew of a Bibby liner idolise him; they love to see him put foot aboard their vessel. His personality and his generosity secure that, for he is generous in the extreme.

Anyone reading these notes would suppose their subject to be a very strong man, so multifarious are his activities. The fact is that he has too often carried them out in the teeth of illness. "I have gone with him to London at 5.0 in the morning, to attend a conference, when his temperature was

101·0° F.," said one of his friends, and one of the interviews at the Ministry related above took place on a day when, before he left home to catch the early train, his temperature was 103·0° F. His personal comforts have always been as nothing in the presence of public duty.

In his later years honours have come to him, such as his knighthood, his Freedom of Crewe. The latter was conferred upon him at the jubilee in 1927 of the incorporation of the borough. He is one of the six honorary freemen. The list includes the names of his old opponents, the late Sir Richard Moon and the late Mr. F. W. Webb. The Marquess of Crewe and Sir William are the only two burgesses surviving. Not least, perhaps, amongst his honours was the fact of occupying the chair at the very noteworthy occasion when H.R.H. the Prince of Wales opened the new buildings at Reaseheath, Nantwich, in October, 1926. The concentration of all agricultural education therein was the outstanding feature of his educational work in the last dozen years. The gathering was immense, and Sir William may have deservedly felt that it rounded off the educational structure he has laboured to perfect. "It may fairly be claimed that the whole fabric of county public education in Cheshire," writes a well-known authority, "is largely due to the energy and vision of Sir William Hodgson."

A publicist who knows him well writes of his vision and his courage: "He has a rare steadfastness of purpose. Finding his work, he has devoted himself to it with all his soul—this is the power that has given him strength to stay the course—his surrender of himself to his great work for his fellow men. He has laboured amidst many discouragements but has always proved a magnificent fighter, and disappointments seem only to nerve him to greater efforts." At a dinner given to him by his medical colleagues in November, 1925, his characteristics were summarised in Latin—on the ménu ! This tribute, with "banquet" altered to "book," serves as the dedication of the present volume—"Ingenio fortis, impetu audax" run the phrases, "colloquio disertissimus." About the last a word must be said, and another recalled, a remark about his eloquence and his arguments. It is true he can be eloquent, can sink his voice to excite pity or breathless interest, or raise it in a veritable tempest, always under control, however, and composed of well-chosen phrases. But those are the lesser parts of oratory. When Wilkes described oratory to the great Dr. Johnson as accompanied with all the charms of poetical expression, Johnson replied: "No, sir; oratory is the power of beating down your adversary's arguments and putting better in their place." That exactly describes Sir William Hodgson's method. He is an advocate for a cause. He will adduce a dozen reasons wherewith to overwhelm his opponents, as when he captured the interest and enthusiasm of the Welshmen. Or he will single out the weak spot and drive home a devastating blow, as when the I.C. wished to impose the so called pay for work done system. "Victor magnanimus, consilio prudentissimus,"—the superlatives are simple statements of fact. He is delightful to work with because he is devoid of personal feeling against an honest opponent; and again he turns with relief from the call to battle to the constructive work of the Council Chamber. Words written by the Marquess of Crewe when the impending publication of this Fasciculus Cestriensis was mentioned to him may fitly close these notes on the life and doings of our chairman, our paladin of debate, our friend.

Crewe House,
Curzon Street,
W. 1.

"I am happy to think that Sir William Hodgson's services to the profession which he has adorned are being fully recognised. His distinguished work in other fields, as a foremost figure in the life of the County, may have tended to obscure his devotion to the medical labours which yield place to none in their benefit to mankind. Sir William's personal qualities, to which my long personal friendship enables me to bear witness, have endeared him to all who know him in his private as in his public relations with more than one generation of Cheshire people."

(Signed) "Crewe,"
4th April, 1934.

The function of this biographical note is not to praise or appraise: it deals with facts. But it is a fact, and notable, that persons in high places, whose estimate of character is based on an unrivalled experience of life, concur,—as in the sentences Lord Crewe has written,—in the general esteem in which Sir William is held.

Mankind tends to measure us by our own standards. Sir William's standard is courage and public service. His record speaks to the first, and the institutions of Cheshire to the second.

Clinical Memoranda

by Cheshire Doctors.

Timely Tracheotomy.

It has been my good fortune as a General Practitioner to have the opportunity by a prompt and timely Tracheotomy to snatch fellow subjects from impending death. The operation is almost as easy as cutting toe nails !

The conditions required are:—The shoulders well raised (footstool, folded rug, or bundle of clothing) and the head unsupported, hanging back over the edge of the table; the left forefinger pressing up the cricoid whilst the right hand makes the thrust with the scalpel or pocket knife blade, severing the upper rings of the trachea.

I once operated a second time on the same man—syphilitic laryngitis—and after removal of the tube he expressed a wish to enter my service so that I should be handy in case of another recurrence.

Early one summer morning, in response to the family doctor's call (he ought to have done the job himself) I hurried down on my push-bike. The father, waiting in the doorway, told me he thought I was too late; as I stepped into the room above, that view appeared to be true. Recently I saw "the baby"—now grown up and the mother of two grown-up girls. In the centre of the mother's neck there can be seen a thin white line.

H.L.P.

A Country Doctor's Day.

Perhaps it might be of some interest to describe a typical day's work in my practice, with a few comments on each of the cases seen.

I am awakened at 4-45 a.m. and requested to go at once to a girl aged 14. I am told the district nurse is with her. Arrived at a cottage about two miles away, I find two rooms and nine inhabitants, a father and mother and seven children. A "slum" dwelling in the country usually compares favourably (or unfavourably) with one in a large city. The dirt is indescribable. I go upstairs and find the patient in labour with the breech delivered. The nurse is unable to deliver the head. She has only been sent for a few minutes before me and has had no warning that the girl is pregnant. The patient is the eldest of seven children. I anæsthetize her and deliver the head by jaw and shoulder traction. As the girl is under age I feel that it is my duty to enquire as to the parentage of the baby. She tells me it is her own father. I realise that here is a matter of some medico-legal importance: what further steps am I to take in the matter? Is it my duty to report to the police? On reaching home again I decide to write for advice to the Medical Defence Union. (It might be of interest to relate the termination of this case. The Medical Defence Union advised me to say nothing about the matter as I might lay myself open to a serious libel action, and that I was not entitled to act as an informer merely on the unsupported statement of the girl. However, much to my relief, as the case caused me a certain amount of worry, the police got wind of it and acted on their own initiative. The father confessed to having committed incest. He was eventually committed to 13 months' hard labour. On discussing the matter with the police sergeant a few days later, I was told that in his opinion it was undoubtedly my duty to have at once reported the matter to the police. The baby died after 7 days.)

Morning surgery is the next item in the day's work. A "slack" surgery compared to some days. A woman has a furuncle inside the nose, pointing in the septum and causing her severe pain. I have found the much advertised Ilon abscess salve useful in these cases and in all cases of boils.* Another woman has a chronic onychia which has proved very resistant to treatment, including removal of the nail. (Since this, on the advice of a colleague, I have tried packing the nail fold daily with a wisp of cotton wool soaked in T.C.P. The condition cleared up completely after three weeks' treatment and has not yet returned six weeks later). There are two patients, one male and one female, with somewhat vague dyspeptic symptoms; I give them both a rhei c̄ soda mixture and tell them to report in a week's time, when, if their symptoms still persist, I shall make a thorough examination and go carefully into the history.

Surgery over, I set forth on my morning round. To-day is an average day as regards visits, not too busy and not too slack. The time taken in motoring from one case to another is enormous in an extensive country practice. I first see a patient who is in the 8th month of pregnancy and is passing a considerable amount of sugar in the urine. The sugar has been found to be glucose, and as there is a history of diabetes in the family, her relatives are anxious, especially as she has complained of excessive thirst. The patient's mother, who is an educated woman, is well versed in diabetes and I have to be ready to answer many searching questions. The blood sugar curve, taken some four months ago, was practically normal, and two blood sugar estimations taken an hour or so after a heavy carbohydrate meal twice since, have also been normal. (This patient subsequently went through parturition quite satisfactorily and in about 10 days' time was sugar free. To my mind it is very important in all cases of glycosuria of pregnancy to have the type of sugar determined, and, if glucose be present, to have two or three blood-sugar estimations made, at intervals during pregnancy, and to keep a sharp look out for acetone. As a matter of interest I might mention that this same patient in a former pregnancy was discovered, near term, to be passing a considerable amount of sugar, and she was given Trypsogen Tablets† by the doctor then attending her, and in a week's time was sugar free).

---

*It is a German preparation, said to contain the resin of the pine ["Coniferenharze"] i.e., colophony resin, together with a distillate from sulphonated turpentine and other obscure ingredients such as a solution produced by the dialysis of pine buds.

I next see an unfortunate woman of 40, who, about 2½ years previously, had a toxic adenoma of the thyroid removed. Her symptoms, viz., tremor, nervousness, tachycardia, dyspepsia, headache, etc., improved. A year later she developed a large hard lump in the left side of the neck which on removal was found to be an adeno-carcinoma. A block dissection of the glands of the left side of the neck was carried out. Now she has developed secondaries in the left breast and the upper end of the left femur where a pathological fracture has occurred. She refuses to go into hospital again or to submit herself to any more operations. I am keeping her under morphia as she suffers considerable pain in the left leg.

My next patient, a carpenter, has a duodenal ulcer and is in bed on McLean's diet. His wife is most conscientious in carrying out instructions which I have written out in full detail. I personally find that country people, provided they are given clearly written instructions, are most thorough in carrying out diet and treatment—I have treated several cases of duodenal and gastric ulcer in poorer patients in their own homes with very satisfactory results.

I now go and see a rich male patient of 65 who has always "lived well." He is suffering from chronic gastritis and does well on half drachm doses of dilute hydrochloric acid in half a tumbler of water before meals. I tried to get a cholecystography carried out on this patient as I suspected a chronic cholecystitis; but unfortunately he vomited the capsules containing the dye. I understand that this is unusual, but that it was quite a common occurrence when the dye was given in powder form.

---

† Trypsogen Tablets are said to contain proteolytic and lypolytic ferments with 1/200th grain each of gold bromide and arsenic bromide.

The Cottage Hospital is my next calling place where I at present have two patients. One, a male of 22, with a typical lobar pneumonia. I find he has had a crisis on the fifth day and is doing well. I am anxious to ascribe this satisfactory progress to an injection of S.U.P. which I gave him on the 2nd day of his illness. But who knows? I have been told by physicians, who are far more experienced and knowledgable than myself, that there is no foundation for the belief that S.U.P. is of any benefit. Personally I have tried it in pneumonia, influenza and tonsilitis; and I am convinced that it has been of real value in several cases, especially tonsilitis and early quinsies.

My other patient in hospital is a woman of 37 who started with what was apparently a mosquito bite on the dorsum of the foot. She developed cellulitis extending up to the knee. This was followed by a deep septic thrombo-phlebitis just below the knee (she has severe varicose veins). She then developed a huge abscess which pointed on the inside of the leg and which had to be thoroughly opened under a general anæsthetic. Later she developed a small infarct in the base of the right lung. She has now been in bed for three months. For six weeks she was very ill with a swinging temperature; now she is improving and I am glad to find her temperature is settling and lung signs beginning to clear up. I leave the hospital and on my way home to lunch I see a child aged 6 years who is now convalescent from a severe gastro-enteritis. I have found Kaylene to be of great value in these cases.‡

---

‡The preparation is described as an "activiated" colloidal aluminium silicate. It is used with the intention of absorbing toxins mechanically.

In the afternoon I go and see a diabetic patient, a male aged about 42. His is a severe case. I have him in bed on a "ladder diet." His urine has been loaded with sugar and acetone even after two days' fasting and a week's very gradual rise of diet; so I decide to start him on Insulin and an "adequate" diet next day and make arrangements to go and give him the first dose (10 units) in the morning.

My next patient has a pedunculated fibroma of the buttock which I remove under Novutox. He feels faint and "sinking" for a few minutes after the small operation and I wonder whether this is due to the Novutox or to having "had an operation." (I have had one or two other patients who have complained of faintness after injections of Novutox).

I next visit the maternity case of the morning and arrange for the girl and baby to be removed to the Institution Hospital next day. (She was eventually taken care of by some charity institution and was sent down to Cornwall where she is now doing well in domestic service). After seeing two aged chronics, one with arterio-sclerosis and another with myocarditis, I return home to tea.

My first patient at evening surgery is a girl of 20 who is complaining of not having menstruated for nearly a year. She started menstruating normally at 15 years of age. She has been thoroughly examined and no cause can be found for the condition. I am trying her on injections of Progynon, 1 c.c. every other day for 10 days and then 1 c.c. every day for the next ten days, the idea being to endeavour, as far as possible, to make the last injection coincide with the day on which her period would be due. (This patient had two courses of treatment with Progynon, first injections and then 20 days treatment by mouth. Six months later she is still not menstruating though she states that since the injections she has felt much better. Previously she complained of lack of energy). A message then comes in from the wife of the diabetic patient (a well-to-do farmer), whom I had visited during the afternoon, to say "Would the doctor kindly not come and give her husband Insulin next morning as it is Friday and she is very superstitious about that particular day of the week"—the type of problem that one is not taught to deal with in one's student days!

A farm labourer next arrives with a cut finger into which I put two stitches and to whom I give a prophylactic injection of anti-tetanic serum. Having had a patient with tetanus about a year previously one is perhaps rather inclined to give these injections unnecessarily. This latter patient was a road man who treated himself for about two weeks for a small cut of the finger. He developed tetanus and died. I often wonder how far a doctor is held to be responsible for a patient contracting tetanus if he has treated him for a cut and not given an injection of serum. Theoretically tetanus can follow quite a small abrasion and therefore I suppose one should take precautions in all cases of cuts and abrasions in workers on the land. I once discussed this matter with a Coroner and he told me he thought that all such cases should be given a prophylactic injection.

I next book a maternity case; and then give a State Insurance Certificate to a female patient who is suffering from diabetes insipidus. This patient gets some relief from her distressing complaint by grinding up Pituitary whole gland tablets and snuffing the powder up her nose. Then, after entering up my cases for the day, I repair to my evening meal. In the middle of it a boy of 13 arrives who has fallen down and hurt his elbow. It is very swollen and is held semi-flexed and he is quite unable to move the joint. I diagnose a backward dislocation. As I am anxious to rule out any accompanying fracture I tell the parents to take the child to the Cottage Hospital (which is 4 miles distant !) to have an X-ray taken, and I follow shortly afterwards. There is no fracture. Getting a colleague to give the child an anæsthetic, I reduce the dislocation, put the arm up in a sling and tell the parents that it must be kept perfectly still for at least two weeks. This is to prevent any chance of myositis ossificans developing. Then massage and movements can be commenced.

Then home to bed and I hope a peaceful night.

E.S.E.

Reflections on Remedies.

ALCOHOL CONTRA-INDICATED IN PYREXIA.

I limit very considerably the use of spirits in cases in which there is pyrexia or hyper-pyrexia, for of them alcohol kills more than it saves. It raises the temperature and upsets the digestive apparatus. If stimulation is to be of value it must be continuous; hence if alcohol be the stimulant the patient is kept partially intoxicated, an abuse I deprecate. I am positive that if the use of spirit were completely cut out of the treatment of pneumonia and influenza there would be fewer deaths, and in cases of influenza less lung complication. I deprecate the use of alcohol in acute medical cases altogether. I rather labour this point because ever since an occasion when I acted as locum for a country general practitioner I have never used it, and I think I can claim that I was more successful than most in getting favourable results in acute cases. The history of my early experience is as follows.

When I went to take over, I had had drilled into me that brandy was essential in the treatment of pneumonia. My principal took me round the cases, two of which were bad cases of pneumonia. He told me that he did not wish brandy to be used on any account as, his experience was, the patients did far better without. He based his statement on over forty-five years' experience, and told me that he had come to that conclusion by observing that rigid teetotallers recover better than those who would take spirit as ordered, and after a time he absolutely dropped its use.

PNEUMONIA: (1) Coffee and Quinine.

In pneumonia I find that excellent results may be obtained by rectal injections of one ounce of strong black coffee in which there is four or five grains of Quinine in solution. It is easily administered with a rubber catheter and the barrel of a glass syringe.

(2) Cold Sponging of Spine.

Regular sponging of the spine with cold water gives great relief to patients, more than the mere comfort of temperature reduction accounts for.

(3) Venesection is not, I think, practised often enough.

(4) Camphor, either by injection or by mouth in the form of camphor water is very valuable. It is not necessary to suppose it acts as a general stimulant—that is debatable—but it is a good "sedative to the lungs."

(5) Oxygen should be used oftener than it is, and not kept as a mere last resort.

(6) Cold water: It has been my practice to allow patients to drink plenty of cold water.

WISE WOMEN'S TREATMENTS.

In the country side medicinal lore is still preserved and used which dates from remote times. The repository and exponent of this knowledge is often a woman of character and life long experience of attendance upon the sick. Some of these remedies seem to be justified by their empiric value; on others recent science has shed an explanatory light. Here are a variety I have found useful:—

(1) Parsley tea and infusion of Couch Grass.
As diuretics.

(2) Turnip juice for whooping cough.

The expressed juice of raw turnip will frequently relieve the paroxysmal cough of whooping cough.

(3) Butter-milk applications for erysipelas.

The application of cloths soaked in butter-milk gives excellent results in erysipelas, cellulitis, some types of eczema and all cases of superficial inflammatory irritation.

(4) Tea for scalds.

A very old treatment for burns and scalds told to my father by an old woman who lived about 1860 near Penrith was the application of cloths soaked in strong tea. It is one of the easiest treatments and gives splendid results.*

(5) Goose-oil.

The use of a smear of goose-oil, preferably rancid, on linseed meal poultices is excellent for its antiphlogistic and counter-irritant effect.

(6) Cera flava and boils.

The application of cobbler's wax, warmed, draws boils to a head quickly.

* This anticipation by more than half a century of the modern tannic acid treatment of burns is of present utility because the remedy, tea, is so readily available. A quarter of a pound of tea tied in a piece of rag and boiled in half a pint of water makes the solution. Strips of handkerchief linen boiled in it are laid edge to edge upon the affected surface after the blister skin has been rapidly peeled and snipped off. The strips are not removed throughout the treatment but soaked each day with a fresh infusion of tea. Day by day more and more of the linen is found to be dry on removing the outer covering [which should not be thick and heavy]. As the edges lift the portions of the dry linen which now cover healed skin may be cut off, till finally the last damp part has dried and eventually falls off. If there be likelihood of sepsis the outer coverings may be soaked in flavine. [c.f. The practice now advised for mine accidents of having in readiness packets containing Tannic Acid and Flavine mixed ready to make a solution. (20 grammes of Tannic Acid and 0.1 gramme of Acri-flavine in 100 c.c. water, "Report on the Medical Treatment of Men Burned in Colliery Explosions," 1933. H.M. Stationery Office, p. 10).]

APPENDICITIS: OPERATIVE TECHNIQUE.

In operating for appendicitis a point to which attention is not sufficiently paid is the division of the peritoneal bands which form sulci, often very extensive, between the ilium, colon and caecum.

A METHOD OF REDUCTION OF BACKWARD DISPLACEMENT OF THE ELBOW.

There is a very easy way to reduce the backward displacement of the ulna. Seat yourself by the patient's affected side and interlock your fingers with his. Lay your forearm upon his. Extend the patient's arm as far as it will go without giving pain. Then push the point of your elbow backward until it rests firmly against the humerus. Next press your elbow firmly down on the radius and ulna keeping its point against the humerus, at the same time flexing the patient's elbow joint. While doing this your free hand should grip his olecranon process. This method gives a very easy reduction.

THE ABUSE OF OBSTETRIC FORCEPS.

There are far too many women crippled from too early or too speedy delivery by forceps. The head should be wriggled out as if pulling a nail out of a board, and not forcibly hauled out. Too many pride themselves on getting a confinement over quickly.

WARTS.

Soaking a wart with pure carbolic acid and then applying strong nitric acid is a rapid, painless and successful cure.

CUCURBITULAE SINE FERRO [Dry Cupping].

Dry Cupping gives great relief in pleurisy, lumbago and chronic rheumatic affections of joints.

IRONING FOR FIBROSITIS.

In cases of fibrositis, the use of a moderately heavy hot iron, either electric or otherwise, to iron the affected parts is excellent, especially if a damp flannel is laid on the skin and fairly heavy pressure is applied. The method is especially applicable to the muscles of the spine and those attached to the crest of the pelvis. It breaks down the nodules and helps to stretch the fascia.

E.B.

Notes on Some Simple Remedies.

In response to a request from my friend, Dr. Lionel J. Picton, to make a contribution to the volume which is to be presented to Sir Wililam Hodgson on the occasion of his eightieth birthday, I propose to give a brief account of some simple methods of treatment of common maladies of the digestive system. These methods have been culled from sources which cannot now be traced or suitably acknowledged and though not original may be of service to some who are not familiar with them.

A coated tongue is a common feature of many acute and chronic maladies and may cause but little discomfort to the patient; but in some cases, when the fur is thick, much complaint is made of the unpleasant sensations which it causes. Naturally, every effort must be made to remove or relieve the underlying cause of the condition of the tongue; but in the kind of case to which I refer the nature or duration of the primary disease may render these unavailing. When the fur is unusually thick and adherent the ordinary methods of cleansing the mouth fail to remove it. Under these circumstances the fur can be removed by making use of the digestive power of the papain, present in the pineapple, in the following manner. A thin slice about the size and shape of the surface of the tongue is cut from a small fresh pineapple such as can now be obtained at any time of year. This is laid on the surface of the tongue and the patient is told to close the mouth so as to keep the slice in place for ten or fifteen minutes and then to put it out again. This simple treatment can be repeated at short intervals until the tongue is clean and also whenever the fur reappears. The most thickly coated tongue I have ever seen was in an elderly man confined to bed by a chronic ailment. The tongue was coated with fur fully a quarter of an inch deep which caused intense discomfort. As all the usual methods had failed to relieve him I advised the application of slices of pineapple. I heard later from his doctor that the tongue was soon quite clean and that the patient was very pleased with the success of this simple treatment.

The functional disorders of the digestive system which occur as neuroses are not uncommon though their true nature is apt to be misunderstood. They may cause great distress to the patient and to his family if they are not treated on the right lines. One of the commonest of these is aerophagy and when a patient complains of prolonged attacks of flatulence they are nearly always due to swallowing air. The subject is usually quite unaware that he is swallowing the air first, as his attention is fixed on the noisy eructions which follow the distension of the stomach by the air. The true nature of the attack can be determined by watching the neck when the movements of the muscles during the preliminary gulping can be seen; and on applying a stethoscope to the epigastrium the air can be heard entering the stomach. An attack can usually be provoked by asking the patient to show how he gets rid of his flatulence, when he at once begins to gulp air down his oesophagus and then brings it up again. This process may be repeated over and over again for a considerable period. In the treatment of these cases it is important to explain to the patient the nature of the malady, and that the gaseous distension of the stomach is being caused by his own efforts, so as to secure his co-operation in doing all he can to check the attack as soon as it begins. If there is any real digestive disorder present, as an underlying cause of the attacks, naturally it must receive the appropriate diatetic and medicinal treatment. The most important part of the treatment, however, consists in getting the patient to arrest each attack at the onset by the simple procedure, suggested by the late Professor Wylie, of Edinburgh, of placing a cork or piece of india-rubber, about half an inch thick, in the corner of the mouth and holding it there firmly between the teeth for a few minutes. This should be done each time an attack is felt to be coming on until they cease. I was once asked to see an elderly man who lived in a terrace and was subject to prolonged attacks of aerophagy in the early hours of the morning for which no treatment had afforded relief. The attacks lasted for several hours and the eructations were so loud that not only his own household but also the inmates of the two adjoining houses were kept awake by them, so that relationships had become somewhat strained. By the simple use of a cork the attacks were quickly checked and peace was once more restored to three households. Another curious case, belonging to the same group, was that of a middle-aged man who was continually opening his mouth wide and protruding his tongue as far as it would go. This proceeding was very embarrassing for him, as the significance of the grimace was apt to be misunderstood by strangers who were unaware of its involuntary nature. The only way in which he was able to control the movement was by continually sucking a "bull's-eye" sweet which every now and then, while he talked, was forcibly ejected on to the floor from which he promptly retrieved it and replaced it in his mouth, continuing the conversation as before.

Primary atonic dilatation of the stomach causes great discomfort and mental depression. Though often dependent on the general condition of the patient, which requires appropriate treatment, much can be done to relieve the local symptoms by simple measures. X-ray examinations have shown us that the atonic stomach extends low down in the abdomen and that pressure on the lower abdominal wall elevates it to a normal position. For this reason, wearing a firm binder round the lower part of the abdomen or a specially fitted "Curtis" or "Spencer" support relieves the unpleasant sensations which are so often felt. The meals should be dry and easily digestible and, in order to avoid distension of the stomach, liquids should be taken half an hour before or an hour after meals. Washing out the stomach, after being used to excess, has fallen into unmerited disfavour, as in suitable cases it may be of real benefit.

A patient can soon be taught to wash out his stomach with warm water, to which sodium bicarbonate should be added in the proportion of half a teaspoonful to the pint in order to facilitate the removal of the mucus which is usually present in excess. A funnel or a douche can, with a T piece attached to a stomach tube, be used each night at first and then at longer intervals. As the object of this treatment is to remove any residue of food and excess of mucus so as to leave the stomach empty during the night, the washing should be repeated until the fluid returns clear and then as little as possible should be left in the stomach. The following mixture, which was recommended by the late Dr. Sydney Ringer, has proved to be useful in many cases:—

Rx.	Magnes. sulphat.	gr. xx-xl.
	Acid. carbolic. liq.	m. i.
	Carbonis ligni	gr. v-x.
	Tinct. Nucis Vomic.	m. v-x.
	Aq. Menth. Pip.	ad—fl. oz. ss.

Sig.—To be taken in an equal amount of water thrice daily ten minutes before meals.

The same treatment is helpful in secondary dilatation of the stomach due to pyloric stenosis, when this cannot be removed or relieved by operation.

Many methods have been employed in the treatment of hiccough which, if persistent, may cause great exhaustion. One of the most useful of these is the old domestic remedy of mustard tea. This is prepared by pouring four ounces of boiling water on to a teaspoonful of mustard in a cup and leaving it to cool for twenty minutes. The infusion is then strained and given in teaspoonful doses at short intervals.

In the treatment of cholelithiasis an operation is essential when the gallstones are too large to pass down the cystic duct, or there is a septic infection of the gall-bladder. There are, however, cases in which an operation is contra-indicated or declined, or the gall-stones are small enough to pass along the bile ducts. It is possible, though not proved, that some of the milder cases of biliary colic may be due to the passage of inspissated bile. In such cases a course of treatment with sodium phosphate is worth a trial, as in some of them gall-stones, of a larger size than might be expected, have been passed and the attacks of colic have ceased, so that presumably all the stones have been discharged. The most suitable method is to give a drachm of sodium phosphate in half a pint of hot water on rising in the morning, at eleven o'clock, and at bed time, and to continue the treatment for three weeks. A slight aperient effect may be produced; if it should prove inconvenient in a susceptible subject, the dose can be reduced accordingly. If an attack of biliary colic develop during the treatment, the passage of a small stone may be helped by giving ten minims of tincture of belladonna every hour until the pupils are dilated, or in large doses such as forty minims repeated every two hours until toxic symptoms appear, as recommended by Dr. William Murray in his "Rough Notes on Remedies" for the treatment of renal calculus. If the stones are passed it is advisable to repeat the course of sodium phosphate a few times at intervals of six months so as to prevent the formation of fresh gall-stones.

There are many sufferers from haemorrhoids who, for one reason or another, are either unfit or disinclined to have a radical operation performed, or even to have sclerosing injections made. Much can be done to relieve the inconvenience and discomfort which is felt at times by the use of medical measures, to which a short reference may be made. Constipation must be avoided if possible by taking a sufficient amount of exercise and a suitable diet containing fresh vegetables and fruits, such as figs or prunes. As straining during defecation is harmful, a mild laxative may be required such as liquid paraffin, either with or without phenolphthalein and agar, or senna in the form of fresh infusion of the pods in cold water or as "Lixen" laxative lozenges taken at bedtime in a sufficient dose to cause a normal action of the bowel without purging. That should be avoided. If the pile be extruded during defecation, it should be reduced at once by firm pressure with a pad of wool or soft paper. When any haemorrhage occurs, adrenalin solution or hazeline should be applied before the reduction is made and a suppository containing ten grains of bismuth subgallate can be introduced at bedtime. If prolapse occurs at some other time of day reduction should be effected at the earliest possible opportunity; while discomfort is lessened and cleanliness promoted by wearing a small sanitary towel, size 0. or 1. Congestion or inflammation at times causes aching or actual pain in the lower part of the rectum. This may be relieved by the use of a sedative and astringent preparation such as an "anusol" suppository or in the form of an ointment like "mollientum haemorrhoidal" (Wade), which can be introduced through a perforated nozzle attached to a collapsible tube. These can be used at any convenient time, but give relief all the sooner if a rest in the horizontal position can be taken just afterwards.

The uses of the enema in treatment are apt to be overlooked, though it is equally true that it may be abused by too frequent application as in the employment of Plombière douches with excessive zeal. Glycerine, or soap and water, are common domestic remedies for constipation; but it is interesting to note what can be done by the energetic use of the latter. I was once called, along with a surgical colleague, to see a man suffering from intestinal obstruction. This appeared to be in the colon and, though the cause was obscure, we concluded that it might be due to faecal impaction. Before deciding on immediate operation we recommended a trial of soap and water enemata. The wife of our patient was an enterprising American who at once grasped the situation and undertook to carry out the treatment. We arranged to return later in the day to ascertain the result of the treatment and to operate at once if the symptoms were unrelieved. On our return the energetic lady greeted us with a smiling face and gave a vivid description of how she had spent the interval in giving repeated injections and proudly showed us a row of vessels which contained gallons of soapy water with an enormous amount of faecal matter which she had succeeded in removing from her husband's colon. The patient was rather exhausted by the vigorous treatment he had received, but the vomiting had ceased, the abdomen was no longer distended and he soon recovered.

It may be mentioned here that the efficiency of a soap and water enema is increased by the addition of ox-gall in the proportion of an ounce of fresh bile or a drachm of the dried preparation to a pint of soap and water. If a hard faecal mass require preliminary softening the ox-gall may be mixed with a few ounces of warm olive oil and injected at night, the soap and water enema being used the following morning.

Enemata are often a useful means of introducing drugs into the bowel, such as quassia for the removal of thread worms, or starch and opium in diarrhœa. Gas enemata are now seldom employed, but I have a lively recollection that one of my duties as a house physician was to treat cases of pulmonary tuberculosis by inflating the rectum with sulphurretted hydrogen, generated in an apparatus at the bedside, until the gas could be detected in the patient's breath. The idea underlying this curious treatment was that the then recently discovered tubercle bacillus would succumb to this poison gas attack. Owing to the lack of any sign of improvement in the condition of the patients, and the protests of the other occupants of the ward, the treatment was soon abandoned. The use of ichthyol enemata in the treatment of mucous colitis is not as well known as it deserves to be. This can be carried out at home and so is available for those who are unable to visit a spa for special treatment. A teaspoonful of ichthyol is mixed with a pint of warm water, which is then slowly run into the rectum through a rubber tube attached to a funnel held about a foot above the patient while he lies on his left side. He should remain in this position for ten minutes, then lie on his back for five minutes, and finally on his right side for another five minutes. He can then rise and get rid of the enema. At first some find it difficult to retain the fluid for the full twenty minutes. If so it is advisable to reduce the amount of ichthyol to one half. The injection should be given just after the bowels have acted in the morning and may be repeated twice or thrice weekly for three weeks during which it is a good plan to give twenty grains of sodium sulphate three times a day.

G.R.M.

Medical Experiences in 54 Years in the Profession.

[The writer was educated under the old system. In 1880 he was apprenticed.]

HAZEL AS A STYPTIC.

In 1890 [when R.M.O,, Liverpool R.I.] I was told to stop the bleeding from an ulcer under the tongue of a child with nephritis. The honorary staff had failed to stop it. I applied ''Hazeline'' on cotton wool. The ulcer never bled another spot.

Some years after I sent a man to hospital for gastric ulcer. Three weeks after operation he was sent home apparently dying from haemorrhage. I put him on ''Hazeline' 'and bismuth internally. Ten years afterwards I met him in the street. He waved his hat to me and called out "Thanks be to the Pope, the Virgin Mary and yourself, doctor. I can now drink ten pints of beer daily."

APPENDICECTOMY.

In 1892 I was the fourth surgeon in England to operate for appendicitis, the patient being a farmer in Notts. There was a stone in the appendix the size of half a walnut. The week before I operated on his six months old baby for strangled hernia and undescended testicle. Both patients made excellent recoveries.

BONE-MARROW AND AGUE-CAKE.

I once sent a man to hospital with ague-cake [enlarged spleen] the size of a Rugby football. The honorary staff wished to remove it by operation. I forbade it on the ground that the man would bleed to death. I took him home and put him on bone-marrow. At the end of four months the tumour had entirely disappeared and he was, and remained, quite well.

BONE-MARROW AND SENILE GANGRENE.

About eight years ago a specialist amputated an elderly woman's left thigh for gangrene of the foot. Three years after he wished to amputate the other leg for the same complaint. I was called in and put her on bone-marrow. The foot healed completely.

CHOLELITHIASIS.

For fifteen or sixteen years I was troubled with violent attacks of biliary colic. Then, for three or four months I took "Pil. Cholelith." That was fourteen years ago, and I have had no attacks since.

J.A.E.-J.

["Pil. Cholelith" was called Capsula Sodii Oleati in the Pharmacopoeia Cestriensis of 1917. It is:—

"Acid" Sodium Oleate	of each
Sodium Salicylate	1½ grains.
Phenolphthalein	½ grain.
Menthol	1/10th grain.

Clinical Experiences of a Country Doctor.

(1) HYPERPYREXIA.

A temperature of 109·0° F. and 110·0° F. in a patient who survived may be worthy of record. The patient was a very obese young woman. A few years earlier she had suffered from spondylolisthesis, which I associated with her great weight, —then, at the age of twenty it was 17½ stones—and for which eighteen months of recumbency was tried, fruitlessly. Mr. Harry Platt then operated. He inserted a tibial graft in the spine and a cure resulted. Two years afterwards she developed acute rheumatism with cerebral symptoms. For a week her temperature rose each evening to 109·0° F. or even 110·0° F. I was incredulous till I had myself verified the temperature per rectum.

Salicylates were of little or no use; but cold sponging did, in fact, reduce the fever for a few hours. She sweated freely.

Recovery was complete, and in two months she was in ordinary health. It was astonishing that, despite the perspirations and the tremendous pyrexia, she had only lost one stone in weight.

(2) "HYPERTHYROIDISM," a clinical warning.

I have had two patients, women at the menopensal epoch, who seemed to suffer from excessive activity of the thyroid gland. Emaciation, acidosis and auricular fibrilation combined to present a picture of undoubted gravity.

The first of the two patients, indeed, shewed every sign of impending death. She had been examined by eminent consulting physicians, and had been under observation in several nursing homes from which she was discharged no better than when admitted.

This was the state of affairs when her husband made a little chance discovery to which he drew my attention. He happened to be going through his tradesmen's accounts, and came upon consignments, large consignments, of thyroid tablets. Looking back through his past receipts he found, what he had never noticed before, that the same item recurred again and again for years past.

The fact was that, notwithstanding her competent and vigilant nurses, the lady had been keeping these tablets secreted in various garments, and had produced her symptoms by their regular consumption.

On this discovery the supply, of course, was cut off. With the exception of some recurring attacks of auricular fibrilation her recovery was forthwith complete.

Her husband, a man prominent in public life, impressed, thus, with the dangers of thyroid gland preparations, made a move to get them placed under the D.D. Act. He did not succeed.

FRESH INFUSION OF DIGITALIS.

I first began to use infusion of Digitalis in 1887.

I have invariably made it by pouring one pint of boiling water on twenty grains of dried Foxglove leaves which I obtain from a well-known firm in Edinburgh. Of this I give a tablespoonful three times a day or as often as every three hours. A dose of half that size sometimes suffices for my purpose.

I understand that the strength of my infusion is rather less than half that of Infusum Digitalis Recens, B.P. 1932; and that the latter is made of Digitalis Pulverata, whereas I use whole leaves. This point may have no importance. What I do think worth recording is the quick response I get from this scruple to the pint infusion of the whole leaves, and using very moderate doses at that. As I make my own medicines I know my patients get it fresh and I think the results better than those obtained from the Tincture. In cardiac dropsy the infusion of Digitalis seems of peculiar value.

An Asthma Prescription.

For the last thirty years this prescription has been my standby for the relief of asthma patients :—

Rx. Tincturæ Lobeliæ Æthereæ Liquoris Arsenicalis	āā m. v.
Potassii Iodidi	gr. v.
Aquam ad	oz. ss.

Misce : mitte oz. viii.
Signetur : Sumat æger cochliarium amplum ter in die.

H.E.B.

A more elaborate variant of this, but one without which the worst sort of asthma "goeth not out," adrenalin or no, is this :—

Rx. Liq. Arsen.	m xlviii
Sodii Iodidi	gr. lxxxiv
Tr. Belladon.	m lxxxiv
Tr. Lobeliæ Æth.	dr. ii
Extr. Grindeliæ Liq.	dr. vi
Extr. Euphorbiæ Piluliferæ	oz. i
Aquæ Chloroformi Conc.	dr. iii
Aquam ad.	oz. xii

M. .... oz. ss t.d.s.

Retention of Urine: An Improvised Catheter.

Before the days of cars—indeed it was some 33 years ago—I went out late one night with horse and trap to an urgent case nine miles away. Whilst in that remote locality, I was called to an aged woman with acute retention of urine. I had no catheter with me. There was no medico in the neighbourhood. I was embarrassed for a few minutes until I suddenly remembered I had a clinical thermometer and that that was in a case ! After puncturing a small hole in the lower end of the case and boiling it, I passed it with the greatest ease and effectually relieved the woman from her distress.

H.E.B.

Removal of Beads from Children's Nostrils.

I have found an aneurism needle invaluable. You want a good reflected light and if you can see the bead it is easy to slip the point of the aneurism needle above it and to hook out the bead. I do not claim originality; but I have never found a young assistant yet who knew of the dodge.

R.T.T.

Ether.

Amongst the tragedies and calamities of surgery there are hardly any more distressing or poignant than those of deaths following anæsthesia for operations, and more so, since these deaths frequently follow when the operation may have been performed only for the relief of some trifling defect or ailment, when suddenly, without warning, the pulse ceases to beat and the patient sinks and dies, and a life is shortened to a few minutes that might have lasted for years. Formerly this calamity was almost solely due to chloroform narcosis. Since the introduction of many dangerous drugs for premedications with the object of securing a certain amount of comfort for the patient, deaths from anæsthetics are increasing enormously. As the object of basal hypnosis is to soothe the patient and comfort him and to eliminate the dread of the impending operation, it seems it would be only fair that he should be told of the risk he is running and the heavy price he may be called upon to pay for its use.

Ether is the oldest anæsthetic in use, and so far as general anæsthesia is concerned is unrivalled to-day for safety and efficiency. I have used it for upwards of forty years and when using it have never had a moment's uneasiness, which I cannot say for chloroform. I have always given it by the open method, using a mask at first; but latterly I have been using a metal cylinder about nine inches high invented by Dr. Picton. It has an inflated rubber horseshoe face-piece and inside the cylinder layers of gauze are arranged at three-inch intervals. The advantages are that induction is quickened, the vapour is warmed, and the anæsthetic is more pleasant. For the G.P. Ether should be the anæsthetic of choice, and is suited for all cases except for those suffering from acute and chronic pulmonary diseases. For premedication I have only used a 1/75th to 1/150 of a grain of Atropine, and a 1/6th to a ¼ grain of morphia. Use Ether and you will have no worries !

G.O.

A Medical " Cavalcade."

In 1925 some of us were thinking that what liberty of action in the management of patients was left to us by the National Health Insurance Act was threatened by the laboratories. To work under Government rules in a spirit of service was one thing. But to work under rules and principles laid down in laboratories by those who had no knowledge whatever of private practice was something more than unattractive.

The events that fashioned those thoughts, if recorded here in "Cavalcade" or "Milestone" manner, may interest younger men who knew them not.

1899—1900.

Even if the Boer war was still dragging on, Africa was a long way off, so why worry ? For these were the days of quiet and calm—days when a silk hat would be donned each morning, and after a horse-drawn vehicle had been entered, one would be slowly trotted from door to door, reading a book or journal between the visits, or ruminating on one's cases. One was quite happy in knowing that surgery was always handy if medicine failed, never thinking a day might come when, by checking the absorption of toxins, chronic disease might not so often need the help of a surgeon. When peace came to South Africa the whole world seemed at peace, including the world of medicine. Recent discoveries, such as Finsen's, Rontgen's, and Madame Curie's, had not gone far enough to need much consideration, even if they ever would! It is amusing to reflect that what disturbed one's peace of mind most just then, was the rapid spread of the telephone in semi-rural districts. For that infernal instrument not only increased one's mileage, tired the horses, and interfered with sleep and meals, but actually assailed one's dignity. Raucous voices would be heard, forsooth, shouting "Come at once." It had come to that. Come at once! The days of written messages went for ever.

1902—1904.

These years produced social and political changes of a far reaching nature in other countries besides England. Whole nations seemed to suddenly awake to take a fresh interest in their destinies. The news of this, reiterated by the popular press, to the accompaniment of developments in motoring, wireless and then flying, gave the impression that life was hastening. Excitement was the order of the day. It affected popular thought about medicine. It was reflected in one's patients when the news came that with the help of the opsonic index, vaccines of wonderful power could be made. It was a time when the Leeds school were urging early operation for duodenal and gastric ulcer, a time when appendicitis of fulminating type was met with very commonly in practice. So commonly indeed that the "Come at once" message often proved to have been twenty-four hours too late to save a life. Anxieties were so increasing that between 1905 and 1906 the silk hat was put away. Gone were the dignified days of quiet and calm.

1907—1909.

The pace was quickening. Following upon King Edward's inquiry in regard to tuberculous diseases, "If these things are preventable why are they not prevented?" hygiene and preventive medicine had forged ahead. Public Health officers had increased in number: so had notification certificates.

The School Medical Officer had arrived. The Midwives Act was in force in some districts, whilst enteric fever, that old stand-by of practice, had almost disappeared. Meanwhile isolation hospitals were absorbing more of one's work by offering facilities often unobtainable at home, just as sanatoriums were doing more and more for phthisis. And as new specialisms founded on Finsen's Light treatment were springing into existence, and surgeons were desiring patients to go into nursing homes for operation, such dissipation of practice and private work was proceeding that one wondered from day to day what would be taken next. Nor was the answer long in coming. For Ehrlich's invention, salvarsan, was seized upon by specialists. V.D. became their province. That class of work, too, would be lost to the G.P.

1910—1912.

Matters now took a more serious turn. Whilst the public was clamouring for more and more vaccines the very foundations of medicine were now being rocked by the rising school of biochemistry. The pathologists and bacteriologists who had dominated medicine so long were seen to be battling with the biochemists, who seemed to want their place. As a result of the clash, remedies founded on half-digested theories of either school came by every post. Practitioners who did not know what to advise sought specialist help more often; but not by the old method of dignified letters. Hurried appointments would be arranged for impatient people by telephone. When patients were found doing the same for themselves without authorisation, the ''family doctor'' type of practice seemed endangered. As the National Health Insurance Bill, when it first appeared, seemed greatly to increase that danger, opposition to that measure was general. Much time was spent in fighting it.

1913.

Cheshire men took a share in making that Act acceptable. We agreed to work it, uncomfortable as it proved in many respects. In the first eighteen months we found its rules and regulations very irksome. To add to one's worries just then, news came that the principles of dietetics were likely to be remodelled, as Gowland Hopkins had not only confirmed the vitamin discovery, but had greatly advanced it.

1914—1918.

The World War, with its griefs and tragedies, fell heavily on the profession, and anxieties increased for all.

1919—1925.

When the War was over surgery was seen to have been advanced. But what of medicine ? What was Sir James Mackenzie's opinion ? In his book, "The Future of Medicine," which he published in August, 1919, he described the state of medicine as being nothing less than chaotic. He argued that research, primarily intended to ease the path of the practitioner, could, as then conducted, only increase confusion. And he called for simplification. His warning went unheeded, and the rush went on. Even faster when insulin came. Experienced practitioners were shocked to find many papers then published inferring that nothing could be diagnosed or treated properly unless by the use of instruments of precision and biochemical tests. It would seem that the time they had been spending in developing their powers of observation had been time thrown away. In future, apparently, every case was to be sent to a specialist or to a laboratory. The experienced practitioners turned away and laughed. For how could literature that was packed with "syndromes" and "entities," with "reclassifications" and "subdivisions," suit clinicians looking for something to satisfy patients who were wandering off to Faith Healers, Christian Science and Temples of Healing ? Could anyone blame a man for taking up a treatment in 1925 that, in the hands of a group of practitioners, had shown signs of promise. After all, the empiric method, as well as the experimental, is scientific : what does good is good.

1934.

One of the disadvantages of medical education is that students who are going to be general practitioners are taught by those who can only teach what they themselves have learned as specialists. That is why many leave their medical schools ignorant of the aspect of work which presents itself to the family doctor.

Medicine has lost as well as gained by the abolition of apprenticeship. We admit the gain: let us also admit the loss and try to restore it. The loss is chiefly in relation to the habit of individualising patients. The family doctor thinks of their constitution, their "inborn errors" and peculiarities of metabolism, their mental make up, their feeding, their family. To him they are the soil of microbic disease. Like a farmer he must understand his soil and keep it "in good heart." Every agency that knowledge of the individual circumstances and commonsense can invoke must be applied to this task, dietetics—that above all—hygiene, personal influence and sometimes organotherapy and other medication. In the nature of things a specialist cannot undertake this work. That there is such a field as family practice, and that this is its essential nature, should at least be kept before the minds of those who are being educated to be general practitioners.

H.W.N.

The Method of Detoxication by Thyroid and Manganese.

In "cavalcade," above, medication is mentioned last amongst the means of keeping the human "soil" in good heart. In the presence of disease it deserves a foremost place. Every agency that can render the circulating poisons inert is of value. I wish here to describe one such, to which I have devoted the last nine years. It is a systematic detoxication method of empirical origin. The drugs employed by it are thyroid and permanganate of potash. It can be combined with most other forms of treatment, but not with vaccine therapy.* It arose from watching the case now to be described.

THE CASE THAT SUGGESTED THE THYROID AND MANGANESE TREATMENT.

In 1918 a previously healthy man, aged 49, developed occasional attacks of stiffness and muscular pains in the neck and limbs. His occupation was out-door, of a kind that exempted him from war service, and his diet was as good as in peacetime. Some months later the area involved was reduced to one limb: he was left with a right-sided brachial neuritis. The pains lasted hours at a time, sometimes for several days together. He received aperients and symptomatic treatment, and continued at work.

Then dyspepsia began, with nausea and wind. Another symptom was headache after taking carbohydrate food.

After a year of these discomforts, viz., in the Spring of 1919, his finger joints swelled; and by June the swollen interphalangeal joints and fusiform fingers seemed a permanently established feature of his case. Two fingers were reddened. Coincidentally he became breathless on slight exertion, and began to have that pectoral distress which happens when extra-systoles obtrude themselves on the consciousness. Dental discomfort added to his sad case.

A detail noted in July, viz: the faeces being streaked with blood, heralded free haemorrhage per rectum later in that month. In August it increased and signs of intestinal obstruction set in.

An operation disclosed diverticulitis of the lower end of the descending colon, with a mass of pericolic adhesions. These were dealt with, the obstruction relieved, and all went well.

---

* Hearne [B.M.J., vol. I, 1928, p. 159] however uses the treatment in conjunction with pneumococcus vaccine.

Things went so well, indeed, that a few weeks later all the symptoms related above had practically vanished.

Reflecting on this I thought that toxic absorption must have been the original cause of the symptoms. The aperients, by driving the toxins through a weakened mucosa, might have aggravated them.

The inception of many a chronic and crippling illness is not unlike that which I have sketched; and from then onwards I set myself to study all such in my practice, with this object lesson of the benefit of removing the source of the toxins before my mind.

In 1924 a number of my colleagues interested themselves in the matter. The results of our combined clinical enquiry have been published elsewhere,[1] and only its chief findings will be given here in the order in which our studies disclosed them.

CLINICAL INVESTIGATION.

STAGE 1.—1919 to 1921.

Chronic invalids were encouraged to give up aperients and to resort to simple enemata, once or twice a day. A hint derived from one of these patients, in whom there was deficient thyroid activity, supplied the key of much that followed. The thyroid functioning was improved by washing toxins out of the rectum. The thought arose that varieties of toxins might affect other glands of internal secretion, and that some of the improvement observed—for it *was* observed,—had come from washing these away.

STAGE 2.—1921 to 1922.

What would happen by using an enema containing permanganate of potash? If disinfectants be compared in strengths that can be used without damage to the tissues, permanganate of potash is

---

REFERENCE.

(1) B.M.J., Volume I, 1925, page 443.

at least high in the list, if not at its head. Some authorities have placed it fifty per cent. higher in efficacy than its nearest competitor. Its action is to oxidise toxins. It has been used internally in cholera and was found valuable. Why not try it? On these grounds I came to add permanganate of potash to the enemata. The strength I used was gr. i. in O. iss. of warm water.

The resulting improvement in the condition of the patients was greater and more quickly shewn than before the permanganate was used.

STAGE 3.—1922 to 1923.

Many of the results recalled and reinforced the hint derived in the first stage of the enquiry that the treatment corrected a thyroid shortage; and suggested that sub-thyroidism commonly attends these chronic diseases. On this account I began to give small doses of thyroid extract. They were administered by the mouth; and the results seemed to me to justify this addition to the treatment, and the improvement of my patients was impressive.

STAGE 4.—1923 to 1924.

Having seen, as I thought, so much good flow from this treatment, I now began to make use of it in acute as well as in chronic cases. This was merely on Hunter's maxim, "Try and see." In the blood-borne infections in which I now used it, pneumococcal, staphylococcal, streptococcal, there was nothing to suggest the bowel as the source of the toxins.

But in these acute cases I often found that improvement followed the exhibition of the thyroid and permanganate. Sometimes the disease was checked; sometimes the improvement was rapid and marked. I was convinced that these changes for the better were "propter" and not merely "post." In other words, here was a remarkably favourable influence upon the course of acute infections.

A clinician who stumbles step by step in the dark places of empiricism, if at last he see light, cannot fairly be asked what guided him to the point he has reached. I cannot suggest the precise causation of the effects of this treatment, though I am sure that they may very frequently be observed. That some oxidation process is conveyed through the wall of the bowel into the blood stream is a crude guess; but that it may contain some germ of truth seemed to be supported when I beheld improvement follow rapidly on the use of the method in several severe influenzal patients, two with herpes zoster and two with anterior poliomyelitis. That these virus diseases should be favourably influenced by detoxication of the bowel contents seemed unlikely; and, therefore, an influence of the medication used upon the blood or upon the tissues through the blood is a reasonable theory.

It was at this stage that I confided my experiences to a Cheshire colleague. He was interested. He also would "try and see."

STAGE 5.—1924 to 1925.

He did. He made use of the treatment in a grave case of cerebro-spinal meningitis. The rapid recovery of this patient impressed him.

At this point upwards of thirty practitioners, half of them Cheshire men, agreed to try out the method in practice. Their results were published in a combined report in the B.M.J., March 7, 1925.

STAGE 6.—1925—1926.

One detailed change in the treatment made at this time is worth mentioning: we began to use a cachet containing powdered permanganate and thyroid.

STAGE 7.—From 1926 to now.

Cachets containing both drugs, taken by the mouth, having succeeded in patients whom the permanganate enemata plus thyroid by the mouth had failed to relieve, it was natural to suppose that the influence exerted by the permanganate was in these cases upon the stomach or duodenum or elsewhere in the small gut. We realised that the large intestine is not the only field for its favourable employment.

In short, when it is impossible to be sure where the infection arises good may come from combining this cachet treatment with rectal detoxication. The strength of the enema should be:—

Pot. Permang. .... gr. i.
Aquae .... O iss.

One or two enemata may be given a day each of a quarter of a pint of this solution, after any necessary preliminary wash-out.

The contents of the cachets to be taken by mouth vary according to age and circumstances; but for adults a cachet containing:—

Rx. Thyroidei Sicci .... gr. 1/10
Potassii Permangan. .... gr. 1/8

may be given once a day.

It is a modest claim to say that this enhances the value of any other treatment in many chronic infections, and that it is a means deserving of wide use of "keeping the human soil in good heart."

H.W.N.

The Clinical Value of Basal Metabolism Measurements.

The title of this note has been chosen with considerable deliberation, and I would like to stress at the outset the fact that my remarks are confined, in the main, to the clinical aspect of the B.M.R. determination.

My interest was stimulated in 1925 when it was suggested that I should undertake the investigation of Basal Metabolic Rates at the David Lewis Northern Hospital, Liverpool, in patients in whom altered thyroid activity was suspected.

Since that time, Basal Metabolic rate measurement has gained a very much wider recognition, and the cases which I am now asked to investigate come from all wards of the hospital—children's, medical, surgical, and gynaecological.

In 1895, Magnus Levy demonstrated not only the increased oxygen consumption of hyper-thyroidism, but also the low metabolism of myoedema and cretinism; since then, in spite of the many methods which have been devised to test the functional efficiency of the thyroid gland, the conception of basal metabolism, resting heat production or minimal oxygen consumption, has come more and more to the fore as a state the fluctuations of which are largely conditioned by the quality of thyroid activity.

In 1921 this conception received a definitely quantitative character when Boothby and Sandiford introduced the term Basal Metabolic Rate.

What is Basal Metabolism? As a broad conception it may be defined as the oxygen consumption or heat production of a resting organism, deprived of food, and protected from extremes of environmental change.

In practice, we have come to look upon it as the normal oxygen consumption for a large series of healthy individuals, under basal conditions, in so far as rest, mental activity, food, and temperature are concerned, and where due allowance is made for age, sex, weight, and height.

It must be admitted that, in extreme variations, these standards form material for some criticism; and yet, in all, normal thyroid activity plays so large a part, that total removal will cause a fall in oxygen consumption by as much as 40 per cent.

Chart I expresses in simple form most of the normal and abnormal conditions which are known to disturb the basal metabolism.

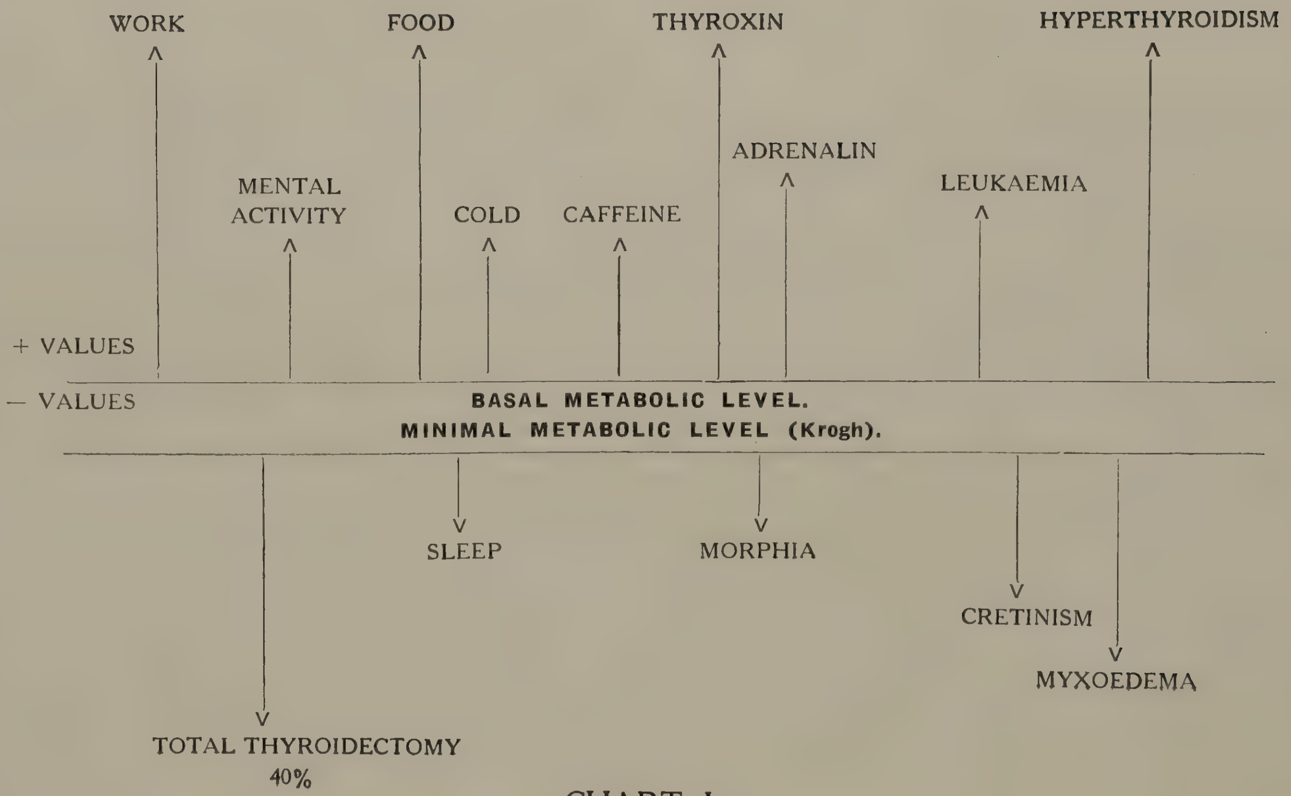

WORK
FOOD
THYROXIN
HYPERTHYROIDISM
MENTAL ACTIVITY
COLD
CAFFEINE
ADRENALIN
LEUKAEMIA
+ VALUES
— VALUES
BASAL METABOLIC LEVEL.
MINIMAL METABOLIC LEVEL (Krogh).
SLEEP
MORPHIA
CRETINISM
MYXOEDEMA
TOTAL THYROIDECTOMY
40%

CHART I.

From these general considerations we can perhaps agree with E. F. Du Bois's generalization that the level of the basal metabolism is the best guide to the activity of the thyroid gland, or we may go further and look upon the estimation of the B.M.R. as a necessary preliminary in the investigation of the many obscure states in which thyroid influence is neither evident nor probable, as for instance in the case of Leukaemia. In brief, one would put forward the view that such determinations can, and should, rank with other well established diagnostic and pathological methods, and that a Basal Metabolism room is as necessary to a general hospital as the conventional laboratory, X-ray room, or E.C.G. department.

I would like to give some explanation of the method which I have employed in estimating the B.M.R. The patient is rendered substantially "Basal" by the following routine procedure:—

Twelve to eighteen hours before the estimation is to be made, he is installed in a comfortably heated and lighted room, and instructed to remain in bed. During this period, all food is withheld from him, but no restriction placed on his drinking water. Depending on the nature of the case, he may or may not be provided with suitable light literature. He is encouraged to sleep as much as possible.

Immediately before the estimation is to be made, the nature and object of the procedure is outlined to him in order to allay any apprehension which he may feel in his unusual surroundings. The co-operation thus obtained is very valuable in many cases, and in a few it is essential.

The most satisfactory apparatus, from all points of view, has been found to be the portable Benedict. Chart II is a line drawing of the Spirometer.

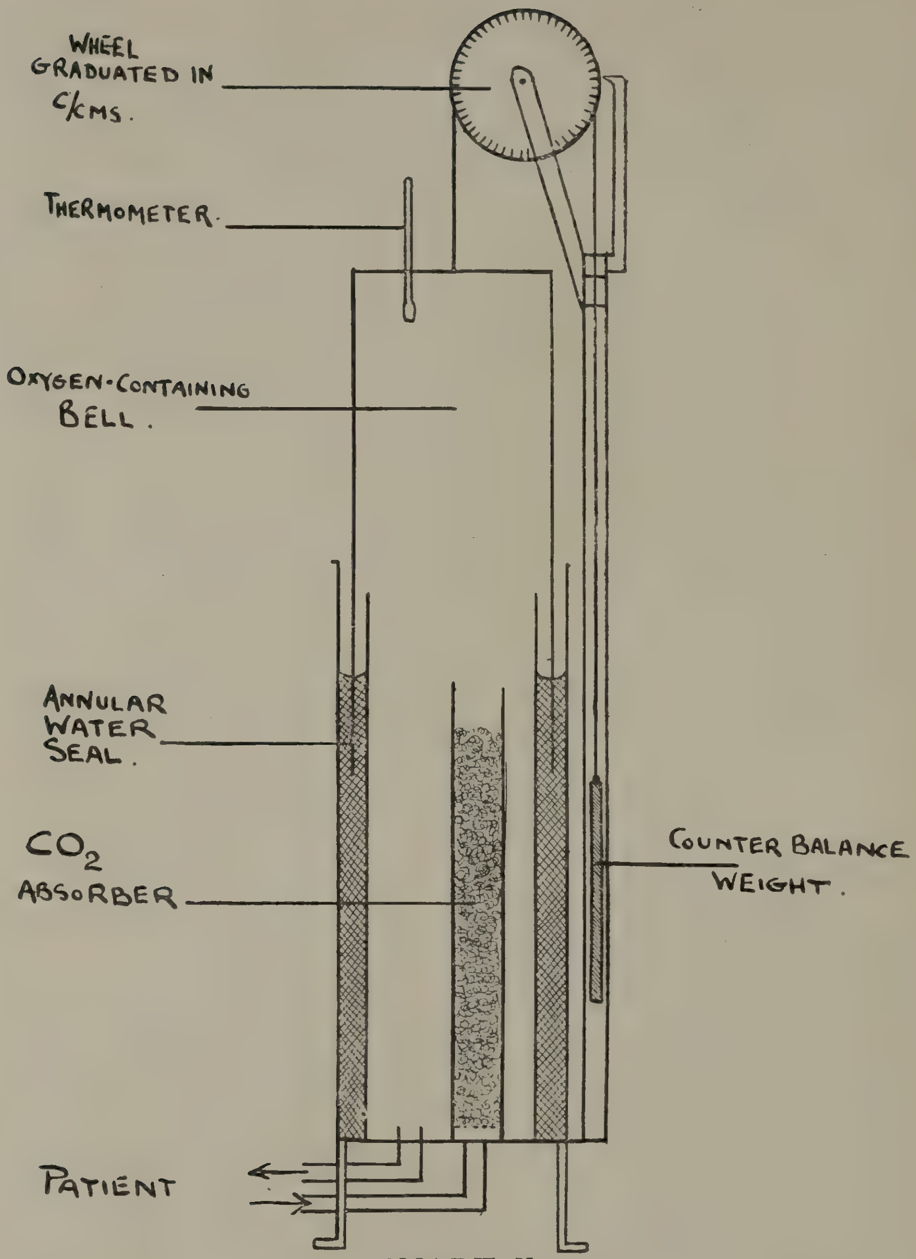

WHEEL GRADUATED IN C/CMS.
THERMOMETER.
OXYGEN-CONTAINING BELL.
ANNULAR WATER SEAL.
CO_2 ABSORBER
COUNTER BALANCE WEIGHT.
PATIENT

CHART II.

In this apparatus, gas leaks defects in valves, etc., are quickly detected by a simple routine test. A new type of rubber valve has been devised which functions well, without frequent attention. A proprietary brand of CO^2 absorber is used which does not "cake" and which remains effective for at least twenty-four 5-minute tests.

The oxygen-containing bell is filled to a given mark from a gas cylinder, and the patient breathes this oxygen via flexible rubber tubes for a given time. The volume used is then set down as the number of cubic centimetres per minute, which, after correction for temperature and pressure, is compared with the patient's ascertained normal oxygen consumption.* The actual figure denoting the Basal Metabolic rate represents the patient's oxygen consumption expressed as a percentage above or below normal.

So much for the brief description of the method employed. I have avoided complications by not detailing the mouth-piece assembly used by the patient; and the arrangement of values which prevents the patient from re-breathing his own CO^2.

Although not comparable in accuracy with Direct Calorimetry, this portable Benedict method has many practical advantages to recommend it, although the term "portable" is, strictly speaking, a misnomer.

There are several formulae, based on pulse rate and pulse pressure figures, which have from time to time given promise of a simpler method of B.M.R. determination. Of these formulae, that of Read is probably the best known. As a matter of interest only, I give it here:—

$$\text{B.M.R.} = 0.75\ (\text{P.P.} + \text{P.R.}) \times 0.74 - 72.$$

---

* The figures for normal oxygen consumption are based on the weight: height figures of Aub and Du Bois, corrections being applied for age and sex factors.

I have compared the B.M.R. as determined by Read's formula, with that obtained by the practical method in a very large series of cases, and have found that, except where B.M.R. is approximately normal, Read's formula gives entirely unreliable and inconsistent results. For all practical purposes it is valueless.

Now for the consideration of the clinical types of case in which it seems of fundamental importance to have a knowledge of the basal metabolic rate.

Chart 3 shows in modified form a scheme for the classification of such cases.

Clinical Types of Case for B.M.R. Determination.

A—(1) GOITRE WITH SIGNS of Altered Thyroid Activity *e.g.*, EXOPHTHALMIC GOITRE.

(2) GOITRE WITHOUT SIGNS of Altered Thyroid Activity *e.g.*, CYSTADENOMA OF THYROID.

(3) SIGNS of Altered Thyroid Activity WITHOUT GOITRE, *e.g.*, MYXOEDEMA.

B—(1) NEITHER GOITRE NOR SIGNS of Altered Thyroid Activity, but where disturbance of End coine balance is suggested, *e.g.*, VAGOTONIA.

CHART III.

It divides all cases into two groups, "A" and "B." Group "A" includes all cases in which disorders of thyroid function or structure are apparent. Group "B" includes all cases in which no thyroid disorder is suspected.

An examination of these groups naturally suggests certain problems, and it is in answering these that the importance of B.M.R. determination is emphasised.

(1) In the case of apparent hyper-thyroidism or goitre, what is the actual level of thyroid activity?

(2) In cases in which there are no definite signs of altered thyroid activity, is there in fact an alteration, in so far as this is expressed by an abnormal B.M.R.?

(3) The success, or otherwise, of treatment as reflected in a movement of the B.M.R. towards normal: and guidance from this movement as to subsequent treatment; or a comparison between alternative methods of treatment.

(4) The prognosis in any particular case.

I propose to give relevant details of a few cases in attempting to show how B.M.R. determination helps to elucidate these four problems.

In the first problem—apparent hyperthyroidism or goitre—what is the level of thyroid activity? I will quote two cases.

Case.	Sex.	Age.	Clinical Diagnosis.	Expected B.M.R.	Actual B.M.R.
6	F.	24	Exophthalmic	+++	+24

and

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R. Expected	B.M.R. Actual
12	F.	40	Marked Goitre c Hyperthyroidism.	+++	+26

Clinically extreme, these cases showed only a moderate degree of raised thyroid activity as measured by their B.M.R. The correctness of this view was borne out by their easy response to treatment.

Case 40 is of great interest :—

Case.	Sex.	Age.	Clinical Diagnosis.	Expected B.M.R.	Actual B.M.R.
40	F.	48	Exophthalmic Goitre with Myxoedema.	?	+40

This woman had had so much of her thyroid gland removed in Paris for Exophthalmic Goitre that she became dull and depressed, put on weight rapidly, and yet retained both exophthalmos and tachycardia. The examination of her basal metabolism suggested that, on the whole, the remnants of her thyroid gland were struggling with some success against either deficiency or the menopause, or both.

Case 27 represents a very common type of patient :—

Case.	Sex.	Age.	Clinical Diagnosis.	Expected B.M.R.	Actual B.M.R.
27	F.	18	Physiological Adenoma.	?	+10

The young and goitrous girl with indefinite symptoms. Should anything be done for her enlarged thyroid gland? Her practically normal B.M.R. suggests an answer in the negative, and in this class of physiological or pubertal adenoma it would seem best to leave well alone if the B.M.R. is normal; in fact, Iodine or Iodides may cause a rise in Metabolism of as much as 20 per cent. in some of these cases.

Case 22 represents an entire shifting of the diagnostic viewpoint as a result of measuring the B.M.R. :—

Case.	Sex.	Age.	Clinical Diagnosis.	Expected B.M.R.	Actual B.M.R.
22	F.	32	Diabetes Mellitus with slight goitre.	?	+174

Sent into hospital as a diabetic, her very high B.M.R. and other features not suggestive of frank Diabetes Mellitus, indicated early Exophthalmic Goitre as the true diagnosis, a view which she confirmed later by developing typical features in the course of time.

Case 72 is of very much the same type:—

Case.	Sex.	Age.	Clinical Diagnosis.	Expected B.M.R.	Actual B.M.R.
72	F.	32	Hyperthyroidism.	+	+19

Thought to be the subject of hyperthyroidism, she was in fact a case of Pancreatitis who did quite well on appropriate treatment.

In this type of case which presents in the early stages of the illness the clinical features of hyperthyroidism, but with only a slight rise in basal metabolism, and which later on develops the underlying condition, H. S. Pemberton suggests the conception of a prodromal hyperthyroidism. This sometimes occurs in such conditions as Pulmonary Tuberculosis and Malaria, and its clinical importance would seem to lie in its masking effect.

The second group of cases may be called the qualitatively diagnostic. Here information is sought as to what the thyroid gland is possibly doing as a contributor to symptoms or signs. With no definite signs of altered thyroid activity, is there, in fact, an alteration in so far as this is expressed by the B.M.R.? Case 15 is of interest in view of the belief of Osgood and others in the incidence of thyroid deficiency in chronic arthritis.

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.
15	F.	59	Arthritis deformans with Myxoedema.	+16

This woman was very fat and had suggestively Myxoedematous legs; yet as a result of her B.M.R. determination, thyroid extract was withheld and she improved very steadily by other means.

Case 80 is typically experimental.

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.
80	M.	38	Vagotonia.	—26

This man presented the features commonly known as Vagotonic, and, as a result of his low B.M.R. alone, was put on thyroid extract—with considerable resulting benefit.

The third group is frankly therapeutic, and the figures in themselves illustrate clearly what are now perhaps some of the accepted principles of treatment in Exophthalmic Goitre.

EFFECTS OF TREATMENT.

Case 25 shows very clearly the effect of shock on a patient with exophthalmic goitre.

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.
25	M.	29	Exophthalmic Goitre.	+83 Falling during 2 weeks medical treatment to +52.

The man was doing well enough on medical treatment, as his falling metabolic rate shows, when his child died suddenly at home. The effect on his basal metabolism was quite disproportionately reflected by his clinical condition, which, however, became later so marked as to necessitate a partial thyroidectomy. Immediately before operation his B.M.R. had risen to +124 from +52.

The next two cases illustrate what is now a more or less accepted principle in the management of Exophthalmic Goitre—that is, to reduce the basal metabolic level to the lowest possible point by means of medical treatment, and only when it does not reach a satisfactory level to interfere surgically.

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.	
56	F.	28	Exophthalmic Goitre.	+62 +39 +39 +33	Falling weekly.

And two weeks after partial thyroidectomy .... —4

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.	
"A"	F.	29	Exophthalmic Goitre.	+127 + 76	Falling in three weeks.
			And ten days after partial thyroidectomy	—7	

Both of these cases were brilliantly successful, but both might have died if surgery had preceded medicine.

Case 79 is obscure. The patient improved rapidly with a high basal metabolic level.

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.
79	F.	51	Exophthalmic Goitre at menopause.	+100 +115 + 91

This sort of effect is not infrequently noticed in similar menopausal cases, and a rough rule is made never to suggest interference until the menopause is over, when often the hyperthyroidism goes, too.

Of the last, and prognostic group, one would speak with reserve. Possibly these cases are not really amenable to basal metabolism measurement. Case 5 would seem to be of a type of exophthalmic goitre which is inevitably fatal.

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.
5	F.	31	Exophthalmic goitre after partial thyroidectomy.	+180 +250

After a very successfully performed partial thyroidectomy, her basal metabolic rate remained high, and actually continued to rise. Possibly more thyroid ought to have been removed later on, but who would undertake to do this with the B.M.R. standing at +250 ?

At any rate, while this was being considered, and whilst she was being kept in strict seclusion on medical treatment, she suddenly fell into acute fibrillation and died.

Case 97 is also a problem :—

Case.	Sex.	Age.	Clinical Diagnosis.	B.M.R.	
97	F.	39	Toxic Adenoma.	+ 72 +100	Getting steadily worse.

On all kinds of medical treatment her basal metabolism rises. What is one to do? A partial thyroidectomy undertaken when the B.M.R. is at the figure of +100 would seem to be courting disaster.

I make no apology for quoting only an odd dozen cases out of some three hundred available, because I feel they alone serve well enough to bring out the particular features of the groups to which they belong.

Now the practical value of being able to determine the level of thyroid activity lies, as I hope these cases have shown, in the great saving in time that results from knowing that figure. Formerly it may have been necessary to keep a patient occupying a bed in a ward for several weeks on end before one was able to say whether he would be likely to benefit from medical treatment or not. If it were then decided to employ other lines of medical treatment, another period would necessarily elapse before definite results could be expected and evaluated. Finally, surgical interference would be deemed necessary, and the lack of precise clinical knowledge rendered the procedure infinitely more risky. Now, however, two, or at most three, successive weekly estimations of the B.M.R. will serve to indicate in the vast majority of cases what improvement may reasonably be expected, and if a surgeon be asked to take up the case, one can usually given an opinion as to the approximate amount of thyroid tissue which should be removed to give the optimum result. Without such information the surgeon is in the dark ; with it his chances of a functionally good result are greatly increased.

With the facilities now available patients can be kept under observation, or results followed up, by admitting them as day cases only, for B.M.R. estimation.

In this connection, however, a word of caution may not be out of place. In the United States it would appear fashionable nowadays for practitioners to ask their patients to attend at their consulting rooms to have their basal metabolic rate determined on the spot. Whatever readings are obtained in this manner will indicate metabolic rates indeed, but they certainly will not be the Basal Metabolic Rates.

The writer is at present developing an electrical method, along the lines suggested by Brazier, of determining the level of thyroid activity which, it is hoped, will, at one stroke, eliminate all the complications and possible inaccuracies of all former gaseous methods. This should lead to a greatly increased ''patient-handling capacity'' by virtue of a great saving in time, since with the electrical method there is no need for preliminary fasting or resting on the part of the patient. Direct readings can be taken without disturbing him or relying on his co-operation.

The importance of these points in cases where a thyroid factor is under consideration needs no emphasis.

T.G.

The Reticulo-endothelial System, with Special Reference to the Spleen.

Phagocytic cells capable of storing dyes and coloured particulate matter comprise what has been called by Aschoff the reticulo-endothelial system. In the mammalian body these cells are found in all organs, except the nervous system, and are demonstrated by the method of vital staining which is carried out by the intravenous injection of solutions of certain dyes into the living animal. Ordinary endothelium is seen by this means to become transformed in liver, spleen, bone marrow, and sinusoids of lymph glands into reticulo-endothelium. In addition all lymphoid and haemopoietic organs contain stellate interstitial cells. These are the reticulum cells, and they produce the reticulum on which they lie. Histiocytes, which are phagocytic cells scattered widely over the whole body in the connective tissues of the various organs, are also stained vitally.

The boundaries of the reticulo-endothelial system are not sharply defined; but the conception of such a system is a very useful one in many ways.

Considerable differences occur between the reticulo-endothelial system of one animal and another, and between the various parts of the system in any animal. The spleen is an important part of the system, and the size of the spleen in various animals is extremely variable. In the cat the weight of the spleen is 0.05 per cent. of the animal's weight, in the monkey 0.13 per cent., in man 0.25 per cent. Some of the differences of statement as to the structure of the spleen are due to the fact that splenic architecture is not the same in the various members of the animal kingdom.

The writer, in collaboration with two others, undertook a detailed examination of the microscopical anatomy of the vascular system of the dog's spleen. Our examination revealed no evidence of any direct arterio-venous communication, such as is often described in the spleen. Communication was indirect only, through the medium of the pulp spaces. Splenic contraction in the dog causes the blood in the pulp to pass by suction and pressure into the sinuses, through their fenestrated walls, and thence into the veins.

The writer found differentiation of function in the various parts of the reticulo-endothelial system of the rabbit by injecting rabbit's erythocytes stained with iron haematoxylin into the circulation of other rabbits.

Using this method, he found that both in normal and in splenectomised rabbits the location of the injected cells was similar. In the normal rabbit the spleen, the liver, and the lungs took up the major portion of the injected cells, the bone marrow took them up to a less degree, and other organs such as the kidneys, suprarenal glands, etc., only slightly. The lymphatic glands and the appendix—in the rabbit a large lymphoid organ—took the injected corpuscles hardly at all. In spleenless animals the organs mentioned above took the black corpuscles in a similar way.

The same distribution was noticed when Indian ink was injected into the rabbit's circulation. Thus, though the lymphatic glands of the rabbit play an important part in the metabolism of blood pigment, they did not take any noticeable share in the phagocytosis of the injected blood cells. This was also the case when Indian ink was injected into the rabbit's circulation.

In the case of rabbits into whose circulation Indian ink was injected, a difference was noted between the reticulo-endothelial cells lining the splenic sinuses and those of the pulp. The carbon pigment was present in the sinus reticulo-endothelium in fine particles, and in small amount, whereas in the cells of the pulp the pigment was present in masses.

A difference in the various parts of the reticulo-endothelial system has been noticed in pathological conditions in which blood is being destroyed. It has been pointed out that while in infectious diseases the whole reticulo-endothelial system is usually involved in the process of destruction of erythrocytes, in the haemolytic anaemias only certain organs show a predilection for the phagocytsis of the corpuscles.

Much experimental work has been done to show that bacteria injected into the circulation are removed from it, and removed with extraordinary speed. This has an important bearing on bacteriological infection of the blood in human diseases. It has been found, for example, that in cases of sinus thrombosis, bacteria are rapidly filtered out of the circulating blood. The number of bacteria in the vein of the arm in such cases was found to be smaller than in one or both jugular veins, because bacteria were either killed or removed from the circulation. It is believed that this filtration is accomplished by the cells of the reticulo-endothelial system. In pylephlebitis, bacteria are hardly ever found in the peripheral blood: the enormous numbers in the portal vein are filtered out by the liver.

There seems to be sufficient evidence to show that the reticulo-endothelial system takes an active part in removal of bacteria from the blood. It is further active in local defence, and in the production of antibodies. It is active in defence in some protozoon infections, and seems to play a part in chemo-therapeutic activity.

The spleen forms one of the most important parts of the reticulo-endothelial system in Man. While it still remains an ''organ of mystery'' as regards some points in its histology and functions, much light has been shed upon it in recent years.

There is one splenic function of an almost unique kind and only in part, if at all, shared by the other portions of the reticulo-endothelial system. The spleen appears to form a large reservoir of blood, situated, as it were, in a cul de sac of the circulation. This large volume of blood can be pumped out quickly into the general circulation by the contractility of the organ. It has been shown that in Man adrenalin produces a marked decrease in the size of the spleen in all cases of spleen enlargement, with an increase of haemoglobin and red cell count in the peripheral circulation, that in normal individuals there is the same increase, but to a less degree, while in splenectomised patients there is no such increase.

The spleen has other functions in relation to the blood. It may in adult life, in cases of special need, for example in certain anaemias, revert to its embryonic function of blood formation, undergoing a myeloid transformation.

More important than this in adult life is the function of blood destruction, in respect of each of the cell constituents of the blood. Of especial importance are erythrocyte and platelet destruction.

Normally the spleen as part of the reticulo-endothelial system deals with aged red blood corpuscles. In some way also, not specifically known, it alters the corpuscle in such a manner as to make it more fragile. Splenic cells take their share in the disposal of such effete red blood corpuscles. Bile formation from the iron free part of the product of the breakdown of haemoglobin is now reckoned as a function of the reticulo-endothelial system.

In haemolytic diseases, for example in Acholuric Jaundice, the iron from the breakdown of haemoglobin is found in the reticulo-endothelial cells of the spleen. The corpuscles in Acholuric Jaundice are unduly fragile, haemolysis taking place, in vitro, in higher strengths of a saline solution than in the case of normal blood.

The other cell element of the blood with which the spleen especially deals is the blood platelet, although the evidence for this is not altogether definite.

In diseases characterised by splenomegaly and haemorrhages, such as Purpura and Splenic Anaemia, the blood platelets are sometimes diminished, and this diminution is a possible cause of the haemorrhages. It is important, however, to distinguish between cases where the platelets are deficient in number and those where they are normal or actually increased. In Thrombocytopenic

Purpura, in contradistinction to Thrombocythaemic Purpura, the former condition holds. Cases of Splenic Anaemia show the same variability, either a reduced, normal or increased platelet count.

Splenectomy has been successful in apparently curing some cases of Acholuric Jaundice, Splenic Anaemia and Thrombocytopenic Purpura. It is essential, however, that careful blood examination should be made both before and after operation, for it has been shown that after the removal of the spleen the number of platelets rises considerably, reaching a maximum on the 8th to the 15th day. Thrombosis due to this great platelet increase sometimes occurs at this time.

Illustrative cases are as follows. The platelet count of a patient with Thrombocytopenic Purpura varied between 50,000 and 130,000 per cub. mm. instead of the normal 300-400,000. Twelve days after splenectomy the platelet count was 2,500,000. Another patient with Splenic Anaemia had a pre-operative count of 55,000. Thirteen days after splenectomy the count was 680,000.

Another case of what was at first taken to be Thrombocytopenic Purpura is under examination at present. Her platelet count on admission to hospital was 61,000 per cub. mm. After a blood transfusion of 200 cub. cms. the count rose in five days to 260,000, falling ten days later to 57,000. A second transfusion caused another rise to 200,000 in eight days, with a fall a fortnight later to 120,000. Following the removal of some septic teeth, the platelet count has considerably improved, suggesting that the platelet deficiency may have been due rather to insufficient production by the bone marrow or to imperfect platelet formation, as the result of the sepsis, than to excessive destruction of normal platelets by the spleen. If improvement continues, as seems at present likely, splenectomy will not be necessary.

A further function of the spleen seems to be that of a storehouse of fats and lipoids. This storage is excessive in Diabetes with lipaemia, and in some cases of Jaundice. Then there are the somewhat rare cases of Gaucher's and Niemann-Pick's diseases where the reticulo-endothelial cells of the spleen are packed with lipoid material.

The spleen probably plays a notable part in immunity, together with the other parts of the reticulo-endothelial system. It is well known, however, that absence of the spleen is compatible with life for the reason that its functions are taken over by the other parts of the reticulo-endothelial system. The following experiments carried out by the writer are suggestive of this. Saline extracts were prepared from the mesenteric glands of spleenless rabbits and injected subcutaneously or intraperitoneally into (1) spleenless rabbits, (2) normal rabbits. All the spleenless rabbits showed an increased white cell count. The average increase for 17 experiments after three hours was 6,395 cells, after 24 hours 3,402. The normal animals, 3 hours after injection, showed a decrease in white cell count, an average slight decrease after 3 hours of 178, and a decrease after 24 hours of 1,550. Splenic extract has been found to cause a lencocytosis.

Absence of the spleen is certainly compatible with life where there is no crisis, but it is an organ of defence which should not lightly be removed. There is much evidence “that primarily the spleen, and secondarily the lymph nodes, the bone marrow, the liver, the kidney, the lung and the omentum are involved in the production of antibody, since it is present in some or all of these organs before it appears in the serum . . . . It seems probable that the formation of antibody may depend on some element common to all these organs, e.g., the reticulo-endothelial system.” (Jordan and Falk's “Newer Knowledge of Bacteriology and Immunology,” 1928).

R.H.M.

Notes on the Early Diagnosis and Treatment of Pernicious Anaemia.

The diagnosis of advanced pernicious anaemia rarely offers much difficulty when the typical signs and symptoms have developed, but in the earlier stages of the disease it may not be easy, since the condition is so protean in its manifestations. It is important to realise that an early recognition of the condition may prevent the onset or progress of a disabling involvement of the spinal cord, while vigorous and adequate modern treatment can even relieve the preliminary peripheral neuritis which precedes the actual cord changes.

The most usual initial symptoms are loss of energy and strength, slight breathlessness on exertion and failure of appetite. Sometimes there may be gastro-intestinal disturbances such as vague dyspepsia, flatulence, nausea and diarrhoea, suggesting a primary lesion in the alimentary tract; but as a rule there is no loss of flesh. The patient gradually becomes anaemic, the skin taking on a slightly yellow tinge, although the sclerotics remain white in the early stages. The lassitude increases and the dyspnoea gets more noticeable, frequently being accompanied by palpitation.

In some cases the disease may begin with symptoms referable to the peripheral or central nervous systems. These are generally indefinite, consisting of numbness and tingling in the hands and feet and cramps in the legs, at first being due to a peripheral neuritis which, if untreated, progresses to definite sclerosis of the postero-lateral columns of the spinal cord.

When the disease is advanced, the signs and symptoms become more marked. The anaemia may be extreme with a red cell count of less than 800,000 per cu. mm. and the skin a bright lemon yellow colour. Weakness and dyspnoea are much increased and there is cardiac enlargement due to dilatation of both sides of the heart, with a haemic systolic murmur and oedema of the ankles; gastro-intestinal symptoms (dyspepsia, flatulence, vomiting and diarrhoea), sore tongue, jaundice, pyrexia, and signs due to central nervous system involvement (varying from alterations of sensation to spastic paraplegia, and even insanity) also become exaggerated.

In association with these there are important alterations in the constituents of the blood and gastric juice. In the blood the most important changes are reduction in the numbers of red and white cells, platelets, and haemoglobin percentage, usually a high colour index, and qualitative changes in the red cells (anisocytosis, poikilocytosis, megalocytosis, polychromasia, punctate basophilia, and the presence of normoblasts and megaloblasts). Considerable importance must be attached to the presence and numbers of reticulocytes in the circulating blood. These cells are of diagnostic importance since they enable one to differentiate pernicious anaemia from aplastic anaemia, or the so-called haemolytic anaemias in which the reticulocytes are absent or much increased respectively. In addition the rapid response (''reticulocyte crisis'') shown by these cells under the influence of adequate active treatment in pernicious anaemia furnishes a very important prognostic feature enabling one to control or modify the treatment at an early stage.

The changes in the gastric secretion are so constant (i.e., complete absence of hydrochloric acid, pepsin, haemopoietin) that it can be definitely laid down that the presence of free hydrochloric acid contraindicates a diagnosis of pernicious anaemia. For in that there is always an achylia gastrica. The value of a fractional gastric analysis is thus fully established, since it furnishes a diagnostic test for differentiating the Addisonian megalocytic anaemia from the haemolytic and aplastic anaemias. Those sometimes show megalocytosis, and usually normal gastric secretory functions.

This gastric deficiency has an aetiological significance, since pernicious anaemia occurs when the haemopoietic system fails to produce normal red cells in the absence of the anti-anaemic principle normally elaborated in the stomach and stored in the liver. At the present time it is believed that this is primarily due to a deficient secretion of the gastric enzymes so that the digestive functions are impaired and the anti-anaemic principle or a similar substance is not formed. The blood-forming tissues gradually use up the available supplies in the liver, and as they cannot be replenished in the normal manner pernicious anaemia develops. A similar type of megalocytic anaemia may also occur when an excessive demand is made upon the haemopoietic system under conditions of stress as, for example, in "pernicious or haemolytic" anaemia of pregnancy. In these cases the effect is either one of complete gastric dysfunction or of incorrect food intake. Thus it will be realised that such an anaemia may occasionally follow gastrectomy, gastroenterostomy, pyloric stenosis, chronic starvation, etc. Adequate replacement therapy in these cases, therefore, should bring about satisfactory haematological responses.

TREATMENT.

The important feature to bear in mind is that pernicious anaemia appears to be a true deficiency disease, requiring an adequate supply of the specific anti-anaemic principle found in liver, kidney or stomach in order that the patient should regain and maintain normal health. The successful treatment of these macrocytic hyperchromic anaemias depends entirely on the administration of an adequate dosage of active anti-anaemic preparations, such as those prepared from the pig's stomach or mammalian livers; the maintenance of suitable dosage indefinitely will keep these patients in good health.*

The ever-threatening possibility of subacute combined degeneration of the spinal cord will not permit of undue liberties in treatment, and it is important to realise that even slight infections will have profound effects on the blood condition. At such times the dose of the anti-anaemic preparation must be increased to the full amount.

---

*cp. Wilkinson, B.M.J., 1931, i, 85. Proc. Roy. Soc. Med., 1931, xxiv, 948; 1933, xxvi, 632, 1341.

It occasionally happens that a patient with pernicious anaemia may refuse or be unable to take treatment by mouth, or the condition may be so severe that more urgent treatment is considered to be necessary. In these cases the use of a potent extract prepared specially for intramuscular or intravenous injection will solve the problem. There are several of these preparations now available, but the ordinary liver extracts for oral use must not be so employed.

The dose to be given varies with the particular product used and the severity of the anaemia. The following will serve as a useful basis for treatment. On the first day, four to eight ccs. (representing forty to eighty grams of fresh liver) are given intramuscularly and followed by further doses of four ccs. on each of the succeeding three or four days. If the case is one of pernicious anaemia and there are no septic or infective complications, the patient will begin to respond within two or three days, and the blood count will show extremely rapid increases in the red cell count and haemoglobin percentage. Control by means of regular weekly or fortnightly blood counts enables a careful check to be kept on the progress. As soon as the red cell count ceases to rise a further 2-4 c.cm. of the intramuscular preparation should be given. It will be found that when a normal blood count has been reached the injections will be required less frequently, but here again the dosage and frequency of administration entirely depend upon, and vary with each individual and can only be controlled by regular blood examinations.

Since the treatment of pernicious anaemia must be continued indefinitely, a more satisfactory routine method, where large numbers have to be treated, is to give the initial intramuscular treatment as above and then, as soon as possible, give 1 oz. of "Pepsac" or "Gastrexo" daily, which may be reduced subsequently to the necessary maintenance dose according to the level of the blood count. Under this regime extraordinarily good results have been obtained, while the cord changes have benefited most satisfactorily. The effect of treatment with an active product is very characteristic. In the course of three to twelve days the reticulocytes in the circulating blood will have shown a rapid increase in numbers, reaching a "peak" or crisis of 30 to 70 per cent., according to the initial level of the red cell count—the lower the initial count the greater the "peak." From this time onwards the blood count begins to rise rapidly, although the patient will have shown and felt marked clinical improvement many days before this is noted.

Once the patient has regained a normal count any relapse suggests either (a) infection, sepsis, or other complications; (b) inadequate dosage; (c) the use of an impotent preparation; or (d) inactivation of a potent product as, for example, by heating the stomach preparation. Appropriate steps should be taken promptly to correct or deal with the cause.

In all cases, whatever form of treatment is employed, sufficient must be given to maintain the blood count at or preferably above the normal level indefinitely.

SUMMARY.

On account of the highly specific nature of the deficiency causing pernicious anaemia, successful treatment depends upon making a correct diagnosis of the condition *before treatment*—at least by means of a full blood count and a fractional gastric analysis.

These should then be followed by as vigorous treatment as possible with potent anti-anaemic preparations of stomach or liver in the fullest doses required by the condition of the particular individual.

Subsequent maintenance doses must be given in adequate amounts to keep the blood always at or above the normal value. In all cases the full dosage must be continued until all signs and symptoms of nervous involvement have disappeared.

J.W.

Rheumatic Infection In Children.

The following is a Summary of the Findings and Conclusions arrived at in a Series of 48 Cases of Rheumatic Infection in Children.

No case occurred during infancy; 70 per cent. were between 6 and 10 years of age when the rheumatism first manifested itself. Girls were affected more frequently than boys, the disproportion in the case of Chorea being nearly 2½ to 1. A female preponderance in rheumatism is more marked as one goes back to infancy and early childhood.

The frequency with which the different lesions occurred was as follows:—

Carditis	79%
Arthritis	64%
Chorea	32%
Tonsillitis	32%
Subcutaneous Nodules	8%

Pericarditis and subcutaneous nodules were the lesions which indicated the most severe infection.

The disease in practically all the cases appeared to run the course of an infective disease and, as regards the cause, the conclusion arrived at was that it is produced by Streptococci which differ little from those normally present in the mouth.

The soil is as important as the seed and the onset of the disease is governed by the child's defects, both environmental and hereditary, which expose him to invasion by micro-organisms which in normal health he would be able to resist.

There can be no doubt that environment plays one of the most important parts in the incidence of rheumatism. In the writer's opinion this fact, taken in conjunction with the great ubiquity of the disease, explains its tendency to attack many members of the same family. No instance of any definite familial tendency was seen in any of the cases under observation.

It would ease matters considerably, especially as regards treatment, if rheumatic children were found to be infected owing to some lack or defect such as an avitaminosis or endocrine shortage, but the evidence put forward by the adherents to this belief is not convincing.

Professor Vining's view that the disease is the result of a health defect brought about by an insufficient protein diet is backed up by a great deal of very sound clinical evidence. The tonsils provided the portals of entry in 30 per cent. of the cases. In the opinion of certain authorities tonsillectomy is a lost cause but it is impossible to agree with this view as, although it did not prevent rheumatism, it was found to have an undoubted effect in modifying its virulence and preventing cardiac complication.

The diagnosis of the early cases presented great difficulty owing to the extreme variety of the signs and symptoms and to the fact of their being so indefinite, and was only arrived at after a thorough consideration of the general appearances and behaviour of the child, and a complete investigation of all the signs and symptoms, including a thorough examination of the heart and tonsils. The most reliable early sign of cardiac rheumatism was undoubtedly dilatation of the heart.

Arrhythmia meant nothing unless accompanied by other signs of heart disease.

As regards treatment, good results were invariably obtained by the administration of large doses of salicylates.

After a study of the foregoing cases, the conclusion that one must necessarily arrive at is, that if we are going to effect any diminution in the prevalence of rheumatic heart disease, it is necessary to take steps to arrest the infection in the child. Even though it seems impossible at present to prevent rheumatism by the study of the disease in childhood, it is undoubtedly possible to prevent relapses and to reduce considerably the number of people whose hearts are permanently crippled by this ruthless disease.

Our aim in combating the disease must therefore be: first, to endeavour to discover the factors which cause the infection or predispose children to it and, secondly, to arm ourselves with a very thorough knowledge of its early manifestations.

It is important to remember that, even when the heart is already affected, careful supervision of the child may help him to reach a standard of physical fitness, sufficient to enable him to return to a normal occupation.

R.H.G.H.D.

Vaccine Treatment of Chronic Rheumatism.

In the autumn of 1930 Dr. Warren Crowe at the invitation of the Panel Committee gave a series of demonstrations at Crewe on the use of vaccines in chronic rheumatic conditions.

The group of diseases known as Rheumatism which annually affect 370,000 insured persons, and cost their Societies nearly £2,000,000 is worthy of the closest consideration by the general practitioner, upon whom the burden of treatment mainly falls. It is in the hopes that the results of the use of Warren Crowe Vaccine in these diseases may be of service to the general practitioner that this paper is written.

Some general considerations of Rheumatism are necessary as a preliminary. The Rheumatic Commission classified these diseases into three main categories:—

A.—Acute Rheumatism (Rheumatic Fever).

B.—The non-articular forms of Rheumatism (Fibrositis, etc.).

C.—Chronic Arthritis:—
  (1) Rheumatoid Arthritis.
  (2) Osteo-Arthritis.
  (3) Mixed Arthritis.

We are concerned with divisions B and C.

The treatment by Warren Crowe is based upon the assumption that all rheumatic diseases are bacterial in origin and therefore should be amenable to vaccine treatment. Those who wish to gain further information regarding the elaboration of this thesis are recommended to consult the various treatises published by Warren Crowe, and particularly his "Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases." *

Our own experience of this treatment began in 1927 when we had an opportunity of treating a case of Rheumatoid Arthritis which began very acutely and seemed destined to merge into the hopelessly crippled condition with which we are all only too familiar. After six months this patient improved so greatly that treatment was reduced to an occasional dose of vaccine and she has now been able to resume her work as a seamstress, with practically no signs or symptoms of the disease. The results of this case were so striking that it encouraged us to pursue the treatment in other cases, and in October, 1930, a clinic for the treatment of rheumatic diseases by Warren Crowe's vaccines was instituted at the Macclesfield General Infirmary and has been continued weekly ever since.

---

* Oxford Medical Publications.

We are thus able to review the results of three and a half years' experience of this treatment, which has been entirely on the lines adopted at the Charterhouse Clinic of Warren Crowe in London. No case, however bad, has been refused treatment, and many of them have a history of over ten years' duration.

During this time 122 cases have attended the Clinic. For the purpose of this analysis we have decided to omit 16 of these, as some only attended once or twice and some others, on further investigation, turned out not to be rheumatism at all. The remaining 106 cases were classified as follows:—

Osteo-Arthritis	59	cases.
Rheumatoid Arthritis	15	,,
Mixed Arthritis	12	,,
Fibrositis, etc.	20	,,

The results in the different groups are:—

	Much Improved.	Slightly Improved.	I.S.Q.
Osteo Arthritis	25	20	14
Rheumatoid ,,	7	4	4
Mixed ,,	5	5	2
Fibrositis, etc.	11	6	3
	48	35	23

This shows that 83 of these cases, or over 78%, have benefited by the treatment. Concerning the remainder classified as I.S.Q., we would point out that, although some were not improved they were certainly rendered no worse and, in our opinion, it is an achievement to prevent a gradual deterioration of such cases under any form of treatment.

We hope that this short résumé of our experience will encourage other practitioners to persevere with the treatment of rheumatic diseases by this method. It is unfair to judge its value on account of one or two early failures, for its success depends largely on the knowledge acquired by experience, and the more familiar one becomes with the technique the better are the results obtained.

R.P. and A.C.G.

Embolism Following Toxic Myocarditis.

A postal official, aged 59, was first seen on October 10, 1932, and gave a history of having been taken ill whilst at the pictures in Liverpool three days before. He was seized with a sudden pain in the right side of the chest and experienced acute dyspnœa. On the 8th October he developed a cough, with bloodstained sputum; and came to his own home. On examination I found an area of dullness in the lower lobe of the right lung with bronchial breathing. The sputum was bloodstained, the temperature raised, the heart-sounds feeble and indistinct. The diagnosis of influenza with toxic myocarditis and infarction of the lung was made. After a somewhat lengthy convalescence, the infarction of the lung cleared up and the cardiac condition improved. A week before Christmas he was allowed to get up for a short period each day and his condition seemed to improve until February 16, 1933, when he was seized with a sudden pain in the right arm, associated with numbness of the hand and fingers. On examination the hand was cold and pallid: there was no radial pulse, nor could one be felt in the brachial artery, and a diagnosis of embolism high up in the brachial artery was made, due in all probability to a thrombus from the left side of the heart. The arm was wrapped in cotton wool and the patient put to bed and kept quiet. Ten days later the patient became unconscious and was found to have paralysis of the right leg and arm and left side of the face, a typical crossed paralysis. After a long convalescence the patient again recovered, was able to walk and obtained partial use of his right hand and arm, though no pulse was ever palpable in the radial artery. The speech also remained thick and somewhat blurred.

From June, 1933, the patient had so far recovered that he was able to come up and see me regularly once a month. The last occasion on which he came to see me was on March 10th of this year, when his condition, considering what he had gone through, appeared quite satisfactory. However, two days later he had a massive pulmonary embolism to which he succumbed. To my mind the interesting features of this case were the series of emboli, particularly the one in the brachial artery, with a fair period of time between each.

J.B.H.

The Medical Treatment of Graves Disease and Toxic Goitre and a case of Diffuse Scleroderma.

Since reading the August, 1932, number of "The Practitioner" I have had occasion to treat two very severe cases of exophthalmic goitres, two toxic goitres, and a case of diffuse scleroderma on the lines there laid down by Dr. Todd, of the Bristol Royal Infirmary.

The main point in the treatment is that the "iodine remission" obtained by the administration of Lugol's iodine in cases of hyperthyroidism, which is only transitory and often leaves the patient in a worse state than before, can be and is definitely maintained by the co-administration of sodium fluoride.

My worst case was a woman of 33 with exopthalmic goitre. When first seen she had all the cardinal signs of the disease. She was emaciated, dyspuoeic, had oedema of the legs, and a completely irregular action of the heart. In six weeks she was able to leave her bed. In twelve, she was feeling quite well, had regained her normal weight and was able to do work about the house. That is fifteen months ago and she is still symptom-free. The other three cases did equally well.

My fifth case was a woman of 53 who, during treatment for a rapidly spreading diffuse scleroderma, developed tachycardia, profuse sweating, tremors of the hands and exophthalmos. I gave her the iodine cum fluoride mixture and not only has the hyperthyroidism disappeared, but some of the patches of hard, firm, glossy skin have become normal in character, the remainder are becoming so, and there are no fresh areas forming.

Dr. Todd advises two solutions, as their mixture produces a deposit:—

(i)	Rx. 2% Aqueous solution of sodium fluoride	m xxx.
	Lugol's iodine	m x.
	Water	to oz. i.
(ii)	Rx. Chlorodyne	m v.
	Tr. Catechu	m xv.
	Simple syrup	m xx.
	Water	to oz. i.

These two solutions are mixed in equal parts and taken three times a day after meals.

The astringent catechu mixture is given to allay the symptoms of irritation of the upper alimentary tract caused by the administration of sodium fluoride alone. The remainder of the treatment consists of complete rest in bed at first (usually a fortnight), and a diet consisting of fruits, vegetables, sugars and starches. Eggs and milk are not allowed. Fat is given only in the form of butter, and small amounts of lean meat can be taken three times a week.

R.O.

B. Coli Pyelitis, the Simulacrum of Miliary Tuberculosis.

The following case shews the importance of examining the urine.

On my return home from a month's holiday I found that a girl patient, 5 years old, had been taken ill with symptoms suggesting to my locum a meningitis. She had been admitted to a well-known Hospital, and after examination, including an X-ray of her chest, her condition was diagnosed as "Miliary T.B." The parents were interviewed on being sent for to take her home and received the impression that nothing further could be done for her and that her death might be expected in the near future. At this stage I visited the child and found her in a semi-conscious state, very emaciated and generally looking as if she could not live more than a week or two. Remembering something of the teaching on pyelitis in children I requested a sample of urine. I found numerous pus cells; and prescribed adequate doses of Pot. Cit. That child made a quick and uneventful recovery, and is to-day a healthy girl.

N.A.B.

Acute Appendicitis: Some Features Of Its Symptomatology and Treatment.

The correlation of clinical appearances with underlying pathological changes is essential to the proper understanding of any malady, and in so far as we are able to form in our mind a clear conception of what is going on within the diseased body, so far can our diagnosis be considered scientific, and our treatment rational. Sometimes this may be easy, and the appropriate method of dealing with the disorder obvious. At other times we may fail to deduce any well-defined impression of the processes at work, and, although able to give the disease a name, we have not really made a diagnosis; in such cases treatment can only be empirical. Acute appendicitis occupies an intermediate position; only by a careful consideration of every symptom and sign and their significance may the surgeon derive a clear and precise picture of what is taking place; and in every patient this should be his aim. Acute appendicitis is a disease which, by necessitating immediate operation, gives him the the great advantage of being able to confirm or correct his diagnosis soon after he has made it. He is able to acquire what Moyniham has aptly termed a pathology of the living

There is considerable diversity of opinion as to the relative frequency of the various positions which it occupies, but certainly the posterior position is much commoner than the older statements suggest. Gladstone and Wakeley (British Journal of Surgery, January, 1924) have shewn that in nearly 70 per cent. of people the appendix occupies a situation behind the caecum or ascending colon. It may there be found free in a postcaecal or retrocolic pouch of peritoneum; or held in contact with the caecum or ascending colon in front of this pouch by a mesentery or by adhesions; or, as a result of obliteration of the retrocolic pouch, extraperitoneal. Next in order of frequency is the descending position (27 per cent.), in which the appendix passes downwards and may overhang the pelvic brim. The remaining positions, the anterior, in which the appendix is directed forwards to the abdominal wall; the splenic; and the subcaecal, beneath the caput caeci and directed to the right, together only form 3 per cent. Its free end may be found at a considerable distance from the ileo-caecal region; for example, in the upper half of the abdomen, on the left side, or in a hernial sac. The position is an important factor in determining the symptoms which any given case will present, and, if an abcess develop, the situation in which it is likely to be found. The blood supply is from a single artery, the appendicular, a branch of the ileo-colic, which is the terminal branch of the superior mesenteric. This, like other arteries to the intestine, has insufficient anastomoses to maintain the circulation if it is stopped. The lumen of the appendix is very narrow, and being in continuity with the caecum normally contains fluid faeces. Frequently, however, these become solidified, and lumps, often of remarkable hardness are formed, which can only escape into the caecum with difficulty. This is an important factor in producing obstruction in the appendix. Other foreign substances are occasionally found within the lumen. Grains of corn have been observed in a few instances, and are of interest as a possible etiological factor in actinomycosis of the appendix and ileo-caecal region. Threadworms are sometimes present in the appendices of children; and fruit seeds, pins, and other foreign substances occasionally. They are sometimes, but not always, associated with symptoms. The following case illustrates the association of appendicitis with a foreign body.

K.R., female, domestic servant, aged 20 years, admitted to Altrincham General Hospital, giving a history indicating subacute appendicitis, stated that she had swallowed two paper clips a few days previously. She was X-rayed, and the film showed the presence in the abdomen of about forty foreign bodies, including tin tacks, gramophone needles, safety pins and paper clips, grouped chiefly in the left iliac fossa, with a smaller group in the right fossa. At operation the appendix was found to be inflamed; it was removed and contained a gramophone needle; the caecum was opened, and fourteen metallic foreign bodies were lifted out of it. X-ray a few weeks later showed that all the remaining foreign bodies had passed through the bowel. The patient refused to give any explanation as to why she had swallowed them.

An uncommon cause of obstructive and inflammatory symptoms is illustrated by the following case:—

E.E.C., female, aged 22. Admitted with a history of pain, at first epigastric, later becoming localised to the right iliac fossa, which had commenced the previous day. Vomited on the morning of admission. Tenderness, hyperaesthesia, and muscular rigidity were present. The appendix showed a mass the size of an acorn about the middle of the organ, which was gangrenous beyond it. The patient made an uneventful recovery. The mass was a spheroidal celled carcinoma.

This is a typical case of the so-called carcinoma of the appendix, which usually occurs in females and in early adult life. The growth is nearly always situated in the distal half of the appendix, and is found unexpectedly at an operation for acute appendicitis. Metastases are not formed, and the growth seems to be benign. Aschoff considers it to be not really a carcinoma but rather an epithelial growth of a naevoid type; and certainly its characteristics support this view. The symptoms are those of acute inflammation due to obstruction of the lumen of the appendix by the growth.

The two chief pathological processes at work in acute appendicitis are obstruction and inflammation. It is useful to consider separately those cases in which obstruction is the primary factor and those in which inflammation alone is apparent.

Obstruction, as we have already seen, is usually the result of impaction of a portion of solidified faeces in the narrow lumen, sometimes at a stricture caused by previous inflammatory attacks. It is particularly observed in those cases which Wilkie has well termed Acute Obstructive Appendicitis. These are the cases which go on to perforation within a few hours of the onset of the attack; in them are seen all those processes which are found in a case of acute intestinal obstruction, or in a loop of intestine in a strangulated hernia. The blood supply is cut off; the appendix becomes engorged and swollen and its lumen distended by the exudate of blood-stained pus. The process is hastened because the appendix, in contrast to the small and large intestine, is incapable of great distension.

Gangrene soon appears at some place, either in the distended distal portion or over the impacted faecal concretion, and perforation is not long delayed. Between the inflamed tissues and the normal parts on the proximal side of the obstruction a sharp line of demarcation is often visible.

Those cases in which inflammation is the predominant factor run a much slower course. Their severity depends upon the virulence of the infecting organism—usually the colon bacillus,—and the resistance of the patient to it. There is no gross interference with the blood supply and the spread of the inflammatory process from the mucosa through the submucous and muscular layers to the peritoneum is less rapid. The time which this takes is of the greatest importance in determining what will happen when the peritoneal layer is perforated. If a sufficient interval elapse after the peritoneum becomes inflamed, adhesions will develop; a sticky exudate will glue together surrounding structures; the omentum will wrap itself around the inflamed area. When rupture takes place it will not be into the general cavity but into a restricted space, and an abscess will form. In the obstructive type there is not time for nature to bring up her reserves, so that the peritoneal layer is perforated before effective preparation is made to shut off the diseased area, and the general peritoneal cavity is flooded with the highly toxic and infective contents of the appendix.

L.W., male, aged 31. Awoke one morning at 4 a.m. with dull pain in the epigastrium. Vomited at 6 a.m. and again at 8 a.m. At 10 a.m. the pain moved to the right iliac fossa. Operation at 2 p.m. revealed a very distended and acutely inflamed appendix, with patches of gangrene, but fortunately not yet perforated.

This is the usual type of history in Acute Obstructive Appendicitis. We have all seen such cases; as a contrast one may quote the following case of an unusually slowly developing inflammation.

W.W., male, aged 66. Admitted with a history of a dull ache in the right side, with flatulence and loss of appetite and of weight. These symptoms had been present for three months, but much worse for one month; and seventeen days before admission he had felt a small lump in the right side, which had gradually increased in size since. He had been constipated.

A smooth rounded mass, about the size of an orange, was visible and palpable in the right side of the abdomen, with its centre slightly below the level of the umbilicus. It was tender to palpation and did not move on respiration. The temperature and pulse rate were not raised.

At operation a right para-median incision opened an abscess in the anterior part of the rectus sheath. This communicated with an underlying intra-abdominal abscess cavity, from which was evacuated much pus and what were probably the remains of the appendix. A faecal fistula developed: it eventually closed, and the patient made a good recovery.

The most important symptom of acute appendicitis is pain; the most important physical signs tenderness on pressure and muscular rigidity. Pain is of two sorts: the first is a general abdominal pain, usually imperfectly located, being referred vaguely to the umbilicus or epigastrium, but never to one side. The second pain is situated in the right iliac fossa. Patients will often say that the pain has "moved to the side," though if carefully questioned they will generally say that the two pains are quite different in character. Only after the second pain has appeared does examination reveal tenderness on pressure in the right iliac fossa and rigidity of the lower half of the right rectus muscle. This must be sought for with the patient's knees well drawn up, and the resistance of the muscle on the right side compared with that on the left.

The explanation of the pain which I have found to be most helpful to a rational understanding of the symptom as one sees it in clinical practice is that put forward by Morley. Hurst has finally shewn that the hollow viscera are not affected by ordinary stimuli such as heat, cold, and touch; but that they are acutely sensitive to one stimulus, namely, increase of tension within them, stretching their walls; and that this gives rise to pain. This is a splanchnic pain; i.e., it arises in the viscus itself. The initial pain of appendicitis has all the characteristics of such a pain. The appendix, as part of the mid-gut, is developmentally a mid-line structure, and as such its nerve supply is derived equally from both sides. This fact alone suggests that any pain arising in the appendix could not be unilateral, and any theory which fails to take this into account is not convincing. The localisation of a planchnic pain is always indefinite, and this initial pain is usually described as a belly-ache; either all over the abdomen or to some point in the mid-line. It should be looked upon as signifying increased tension within the appendix, just as an ordinary belly-ache is probably due to increased tension of the muscular walls of some portion of the intestinal tract.

The second pain, usually more severe, and restricted to the right side, is probably due to inflammation of the parietal peritoneum in the region of the appendix. Once inflammation spreads from the mucous membrane of the appendix through the muscular layer to the visceral peritoneum, there is set up a local peritonitis, at first of slight degree, but sufficient to cause an exudate which comes in contact with neighbouring coils of intestine and with parietal peritoneum. The parietal peritoneum, like the parietal pleura, and in contrast to the visceral peritoneum, is sensitive to mechanical stimuli, and, by means of peritoneo-muscular and peritoneo-cutaneous spinal reflexes, the tone of the overlying muscles is increased, and pain is felt in the appropriate cutaneous area. It is owing to the fact that the parietal peritoneum is supplied by the same nerves as the muscle and skin superficial to it that the localisation of the pain and tenderness corresponds to the point where inflammation is most acute. In a recent case in which the point of maximum tenderness was over the left rectus, the appendix was found to be lying across the abdomen with its distal third, which was acutely inflamed, on the left side of the mid-line. If the appendix is in the descending position, hanging over the brim of the pelvis so that it is separated from the abdominal wall by a considerable distance, these localising signs may not be obvious, and it is in such cases especially that a rectal examination is of such importance.

At a later stage the pain may no longer be restricted to the right iliac fossa, but be spread over the whole abdomen, together with generalised tenderness and rigidity; this, of course, shews that the peritoneal infection has ceased to be local, and that general peritonitis is present. In children one of the characteristics which may render early diagnosis difficult is the comparatively long time that may elapse before the pain becomes localised in the right iliac fossa, and then the short time before it becomes widespread owing to the development of general peritonitis. Pain is occasionally felt in other situations, in the early stages; particularly in the back, or in the testicle.

The importance of a careful evaluation of the pain, together with tenderness and muscular rigidity, in every case can hardly be over emphasised. No other sign or symptom is necessarily present; but, except in the earliest stages when there is only the initial pain, these are always found. Cutaneous hyperaesthesia, about which there has been so much difference of opinion, may be a misleading symptom. Sherren considered that the presence of hyperaesthesia is an indication of an intact appendix, and that as soon as perforation takes place the hyperaesthesia disappears. It is difficult to see why this should be so, and one does not find it a safe rule in practice. In a large number, possibly the majority, of cases of appendicitis it is not possible to elicit hyperaesthesia. All one can say is that when present it is a sign which corroborates the diagnosis.

Vomiting frequently, but by no means always, occurs; usually at the beginning of the attack. It has often ceased by the time the doctor first sees the patient. There is usually constipation; the patient has not had an evacuation since the day before the illness began. Sometimes there is diarrhoea; this is often, though not always, the result of taking aperients, a course which has unfavourably influenced the progress of the disease in innumerable patients. There is frequently a characteristic odour of the breath, and the tongue is usually heavily coated; in fact, a really clean tongue is very uncommon in an acute attack. The temperature is not very helpful as a diagnostic sign; though in the majority of cases there is a rise of 1 to 3 degrees, a normal or subnormal temperature is quite often met with. Acute appendicitis is, however, rarely the cause of a temperature of 103 deg. F., or higher. The pulse rate is not typical: it is often accelerated owing to nervousness at the doctor's first visit.

The patient should always be examined carefully to ascertain whether there is a lump in the right iliac fossa. Often, when it has been impossible to detect a lump previously, one can be felt when the patient is under the anaesthetic. It may be either an abscess or a mass of omentum wrapped around an inflamed appendix. In the latter case there may be some movement on respiration, which does not occur if the lump be an abscess. On rectal examination, which should be carried out in any case in which the diagnosis is at all doubtful, a lump may be palpable.

There is general agreement as to the necessity of immediate operation in the great majority of cases. There are two groups, however, in which expectant treatment may be adopted. Firstly in those early cases in which the patient is seen before the localised pain has appeared, it is almost impossible to be certain of the diagnosis, particularly in the absence of a history of previous attacks; and one is justified in waiting for a few hours for symptoms to develop. The waiting period is best occupied by getting the patient to hospital or nursing home where he can be operated upon as soon as the diagnosis is certain. Secondly, a case which is obviously subsiding should be allowed to settle down, and the appendix removed about a fortnight later. With these exceptions all cases should be operated on at the earliest possible moment. This is the practice of the majority of surgeons and is, in my opinion, the wisest course to follow. One should, however, mention the delayed treatment of cases in which more than forty-eight hours have elapsed since the onset of symptoms. This was introduced in 1905 by Sherren, and is based on the belief that the majority of cases will subside, even though abscess or peritonitis be present; and that after improvement in the patient's condition, as shewn by normal pulse and temperature for a week and the disappearance of local signs, simple appendicectomy can be performed with the ease and minimal risk of an interval operation. There are in my opinion many objections to the method. It is certainly more difficult to carry out and therefore more liable to error. It requires a more accurate diagnosis than can always be made. Not only does it assume that the surgeon is sure that the case is one of appendicitis but that he can tell whether the appendix is intact or ruptured by the presence or absence of the cutaneous hyperaesthesia, which, as we have seen, is too uncertain to be reliable. It necessitates very careful observation of the patient in hospital or nursing home, with the understanding that if he becomes worse at any time operation can be immediately performed. If such a case dies one would often wonder if earlier operation would have saved him. The delayed treatment is admittedly unsuited to children and old people.

Operation, then, is carried out with the least possible delay. The question of anaesthetic requires adequate consideration. For the majority open ether is given, preceded by an appropriate dose of atropine; but in those cases in which this is not suitable, avertin is administered as a basal anaesthetic, a very much smaller quantity of ether being then required. This is particularly helpful when cough is present or chest complications feared, if there be peritonitis and in elderly people and in children, in whom it is very satisfactory. The patients usually remain sleepy for some hours after the operation, and rarely require morphia; and they are less troubled afterwards by vomiting or cough, both of which, besides being painful, are harmful in that they throw a strain upon the recently sutured tissues.

The operation aims, of course, at removal of the appendix, and this is effected in all but those very few cases in which excision would necessitate extensive breaking down of adhesions and opening up of peritoneal layers. Such treatment would inflict upon the patient unnecessary shock, and increase the risk of such complications as haemorrhage and faecal fistula. In these few cases the surgeon contents himself with instituting drainage. The appendix is removed at a later date.

The peritoneal cavity is best reached by a paramedian incision, an incision that has many advantages. It gives a good exposure and may be extended upwards or downwards if required; and in cases in which inflammation is limited to the appendix the rest of the abdominal contents can be examined by palpation and the presence or absence of co-existing lesions determined. When there is a local peritonitis the intestines can be covered by large swabs, and no more soiling of the peritoneum with infective material need take place than when either the Battle (retro-rectus) or McBurney (grid iron) incision is used, and if drainage is needed a tube can be introduced through a stab wound well away from the main incision. Thus that is allowed to heal without a tube passing through it. A para-median incision does not damage any nerve or muscle, and of all lower abdominal incisions it is least likely to be followed by ventral hernia. It never leads to inguinal hernia, an occasional sequel of the McBurney incision, caused by injury to the nerve fibres supplying the lower portions of the inferior oblique and transversalis muscles.

The appendix is sought for, brought to the wound and removed by the usual method. If it be adherent, it is often best to divide it at its attachment to the caecum, and then, after gentle separation of adhesions, to tie off and divide the meso-appendix, care being taken to secure the appendicular artery. The proximal portion being now free, the distal part may more easily be detached from the structures to which it is adherent, and removed. No more division of adhesions is carried out than necessary; if omentum be adherent it is generally better to ligate a portion of it and remove it with the appendix. By using extreme gentleness an appendix which is on the point of perforating may generally be removed without rupturing it and soiling the peritoneum.

The proportion of cases in which drainage of the peritoneal cavity is provided is, in the practice of most surgeons, considerably less than formerly. The peritoneum should be drained, not through the original incision, but through a stab wound either in the right iliac fossa or the suprapubic region. The tube is retained for not more than forty-eight hours. If there be a large amount of effusion a considerable quantity of fluid may drain away. It is clear, however, that by no possible method can the whole peritoneal cavity be drained. A tube usually drains only the peritoneum in its immediate vicinity, leaving the rest for practical purposes undrained. It is in children that drainage is most often needed for peritonitis, and it is partly because drainage is so imperfect that in them the mortality is high, and residual abscess not uncommon. In adults drainage of the peritoneal cavity is most often required in cases in which a raw surface of connective tissue or peritoneum is left after adhesions have been separated. It should be provided in those cases in which the peritoneum of the caecum and neighbouring intestine is dull and lustreless, or signs of local thrombosis are present, or the patient exhibits much toxaemia. The difficulty of securing adequate drainage is exemplified in the following case.

M.R., a girl of eight years of age. Ten days after operation for acute appendicitis at which a small amount of free fluid was present in the peritoneal cavity, her temperature, which since the operation had not been above 99 deg., rose suddenly to 103.5deg. Twenty-four hours later there was a gush of pus from the stab wound, and the following day her temperature settled to normal. Both peritoneal cavity and abdominal wall had been drained, though if the patient had been an adult I should certainly not have put a tube down the peritoneum. Clearly the tube had not been effective in draining some place, and an intraperitoneal abcess had formed. If the patient had not been drained at all, no doubt there would have been more serious trouble.

These cases, however, form but a small proportion of the whole, and in the very great majority, one finds that one can safely close the peritoneum. It is different with the abdominal wall. In any cases in which infected matter may have soiled the incision it should be drained. A strip of corrugated rubber is introduced into the rectus sheath and brought out through a small stab in its outer layer, lateral to the incision in it, which can be closed completely. The strip is brought through the lower end of the skin incision. Abdominal wall drainage is most important, and is required in a large proportion of acute cases. If it is omitted, one often finds that the wound, which has been tender and uncomfortable to the patient since the operation, breaks down after the first four or five days and discharges a considerable amount of pus. Such an occurrence may impair the strength of the abdominal wall and predispose to hernia; there is the further risk of cellulitis, which may spread widely and have disastrous results.

Mention must be made of certain features of the after-treatment. In any case in which inflammation has spread beyond the appendix the patient is put in Fowler's position. Morphia is given after the operation only if absolutely necessary, and never repeated, owing to the risk of paralytic ileus. If any abdominal distension occur, a turpentine enema is ordered and pituitrin administered every four or six hours. These measures are generally effective if begun while the distension is slight, but are very much less likely to succeed if it has been allowed to become severe. In cases of general peritonitis, or in which paralytic ileus is developing, B. Welchii antitoxin should be given.

Despite the advances in our knowledge of the disease, the improved facilities for treatment, and the greater awareness of the need for urgent surgery on the part of both the profession and the public, acute appendicitis still remains a malady with a considerable mortality, varying according to different statistics from 2.5 per cent. to 6 per cent. The cases which chiefly contribute to this fall into three groups: cases of acute obstructive appendicitis, children, and old people. The mortality in children and in old persons is well shown in the statistics of the London Hospital (McNeill Love, British Journal of Surgery, October 1924), in which the death rate in children under ten is 13.1 per cent., and in persons over fifty 11.3 per cent., while in persons between twenty and thirty it is 2.8 per cent., and between thirty and forty 3.3 per cent. In these children at the time of operation inflammation had spread beyond the appendix in three-quarters of the cases; general peritonitis was present in nearly a quarter; and of these latter, one-third succumbed. The diagnosis in children is not usually made early; they are often not seen by a doctor until late, for though the public seem to be learning the lesson that acute abdominal pain in an adult may be appendicitis and therefore requires urgent medical attention, such symptoms in a child are often regard as of little importance.

These points are illustrated in my last 100 cases of operation for appendicitis, in which 84 were acute cases. There were three deaths: two in children of six and ten years respectively, both cases of peritonitis. The younger had been ill for five days before, and died twelve hours after operation; the elder had been ill for three days, and she died the day following the operation. The third death was a woman of sixty, who died suddenly fourteen days after an operation for appendicitis with abscess. This is of course too small a number of cases on which to base statistics.

Perhaps the most striking feature about acute appendicitis is the contrast between those patients who are submitted to operation before inflammation has spread beyond the appendix, who nearly all do well and have an uneventful convalescence and the fortunately smaller group of those seen later, who even if they ultimately make a good recovery, often pass through a stormy period first. It is to the early recognition of the obstructive type, and of the disease in children and old persons, that we must look if a lowering of the mortality is to be obtained.

H.M.W.

Hunger-Pain, Faintness and False Appetite.

Dyspepsia, the perennial problem of the surgery, presents such a complexity of symptoms that diagnosis is often baffling. Between pain just after meals and pain two hours after, pain relieved by food and pain aggravated by it, heart-burn, water brash, pica or strange cravings and anorexia or no desire for food at all the diagnostician must feel his way. A thread to lead him, a guiding idea, would be invaluable.

What follows is an attempt towards finding one. Such a leading thought can only be based on physiology, that is on the natural history of normal processes. I will briefly outline these processes with special reference to the mechanics of digestion, as I suppose them to be commonly agreed; and shall not have gone far in the recital before reaching a point where there is room for doubt,—doubt whether what is common and called, on that account, normal, is not really abnormal; and it is my purpose to suggest that this common abnormality, though tolerated by the majority of its subjects, is none the less the starting point of most of the disorders of digestion.

The digestive events that happen after a meal, say, breakfast, are not limited to the stomach. At the time breakfast is eaten the contents of the caecum and ascending colon will represent the product of the previous evening meal. Within ten minutes of breakfast this portion of the large bowel suddenly awakes from its quietude and by means of some muscular action throws its contents upwards. Part passes the hepatic flexure and reaches the middle of the transverse colon and part stays astride of the flexure. This mass peristalsis, the gastro-colic reflex, causes no sensation. Another similar movement occurs lower down: the contents of the sigmoid enter the rectum. But that, unlike the events higher up, is felt. This is a slight sensation of desire to go to stool.

Upon all this there will be general agreement that the processes described are normal. Upon what happens after the second and other meals are taken there seems to be need to revise the opinion at present prevailing. The gastro-colic reflex happens after each meal; and to regard the accumulation of the bowel contents in the pelvic colon and rectum as normal throughout the rest of the day and the night seems to me a mistake. That it commonly occurs in otherwise healthy people is familiar; but a substantial minority of persons, including many of the most robust, habitually evacuate after each of their two main meals in the day.

If, as is commonly taught, the rectum is at rest when empty, with its walls collapsed and, in section, slit-like, that portion of the bowel must be regarded as being at work when it is distended with faecal contents, its walls circular in section. The opinion at present prevailing tacitly acquiesces in a dump or accumulation in the pelvic colon with a distended rectum from the time of the second meal in the day to the next morning after breakfast.

The implication that the rectum, a passage with the function of retaining the faeces until the subject can reach a place in which to relax the inhibiting sphincter * should thus hold its contents eighteen hours out of the twenty-four, all the time stretched, its muscles tiring, its contents drying, getting stiffer and less easy to expel, seems to require revision.

The writer desires to advance the view that this state of affairs, though common, is not normal; that it is rendered possible by the smooth, de-natured food of civilisation; and that the prejudicial effects arising from it are increasingly evidenced when the elasticity of youth gives place to the more rigid bodily habit of middle life.

In short, it is normal for the bowels to be moved after each substantial meal.

A meal steepens the digestive gradient. [Alvarez uses that term. Though it suggests gravity acting on railway trucks, and though gravity has not much to do with the passage of the bowel contents, the metaphor is an extraordinarily useful one, especially if the gradient contemplated by the mind's eye can be steepened, flattened or reversed. The term

cf. * the badger with his latrine.

covers all the digestive processes, peristalsis, haustration, mass peristalsis, all the interlocking chemical, hormonic and nervous influences which pass the food from length to length of the gut, unlocking a sphincter and locking it again behind the gush of contents; and by some liason of functions securing that the independant pace makers of stomach, duodenum and perhaps of other parts use the rhythms of contraction which they set so as to carry the stream in the right direction.]

Suppose an undue accumulation to have occurred in the pelvic colon and rectum, the gradient is flattened thereby and may be reversed. The contents in some lengths of the bowel may begin to go the wrong way. The subject feels uncomfortable. He has the sensation that food will relieve him. The meal in fact gives relief—by restoring the normal gradient and steepening it.

The cause of the hunger was constipation, not the need of the tissues for nourishment. Such hunger used to be called "false appetite." It leads to food being taken in excess and too often. Inasmuch as small intermediate meals are most convenient in the form of bread, it leads often to an excess of starch being eaten and so to amylaceous dyspepsia.

It is notorious that "wind," a feature of all kinds of dyspepsia, is especially troublesome in the kind associated with excess of starch. The old explanation [Lionel Beale] that this is due to fermentation may have little truth; but the fact remains though that explanation fails. The wind is the tension of gas penned in lengths of the gut by the unemptied contents of the lower bowel. There is a traffic block and the green light has failed to appear.

Distension below the diaphragm, embarrassing the heart, causes a feeling of faintness, and this, too, is associated with hunger. The subject is "faint with hunger" and seeks a meal, the rationale of which, once again, is merely to steepen the gradient. Even though the objective of that process, the evacuation of the bowel, be not achieved, the steepened gradient means that peristalsis goes the right way, and comfort ensues.

Hyperchlor-hydria, or the continuance of the HCl. in the stomach at full digestive strength for hours after the digestion does not need it, is closely associated with the symptoms of hunger pain and also of ''false appetite'' and ''faintness from hunger.'' It is stated not to be due to the excessive peristalsis of the pyloric end of the stomach, which commonly occurs in these patients, for these movements occur both when there is pain and when there is not. It is not due to the prolonged presence of the hydrochloric acid itself, for that may occur without causing it. In short, the hunger pain of hyperchlor-hydria is not fully explained. My purpose is to mark its association with the symptoms ''false appetite'' and ''faintness from hunger'' which I think undoubtedly due to constipation or to that misleading state of affairs which is almost always present in dyspepsia, constipation with overflow, an action occuring each day, an evacuation or clearance never. All three symptoms are relieved by taking food.

Aperients are a doubtful ally in dealing with dyspeptics, but the choice of the right food is of prime value. A return must be made to the kinds of food which the human organism was designed to consume. Primitive men must have eaten largely of leaves, meat and fruit. Gorillas eat wild celery which grows in great abundance in their mountain valleys; and they eat quantities of the young leaves of the bamboos. Caged monkeys catch sparrows which alight on the wire of their enclosure. They pull them through and devour them greedily. Civilised man, with his chop and salad, can follow an essentially similar selection of food without eccentricity.

One thing is specially to be avoided, the mixture of starch with meat. Pavloff has shewn in dogs long digestive delays result inevitably from that—meat 4 hours in the stomach, starch 1½ hours, a mixture of the two, 9 hours.

To consume beef and "Yorkshire," mutton and potatoes or a pork pie may be economic: the food "lasts you a long time," but the economy is ill bought, by a dyspeptic at any rate, on account of the sluggishness of the digestive processes which the combination of starch and meat induces.

Soup without "roux" or floury thickening, meat or fish, salad or greens (boil greens 5 minutes only, then mince them with salt and butter), finally fruit is the scheme suggested for the meat meal of the day.

Starchy food should be reserved for a separate meal.

Something more than a right choice of food is needed to restore the habit of an action after each of the main meals. Ruling out aperients for the most part, and ruling out paraffin as an inadvisable lubricant, interposing a film of mineral oil between the meal and the mucosa, what remains?

(i) The regular habit, after the first meal in the day and the last [or between that and bedtime].

(ii) Occasionally enemata of water, or glycerine, or suppositories of soap, till such time as the habit is established.

(iii) Flea-wort seeds [Psyllium], a couple of teaspoonsful taken in the mouth dry, not chewed but washed down by a little water. These produce a vegetable mucilage which is a lubricant.

(iv) Prunes properly prepared:—a pound of prunes and a teacupful of black treacle, four senna pods—four only, enough to give a slight "kick"—with a little water, soaked 48 hours and then stewed in their own liquor.

The value of the diet or rather the dietetic conceptions advocated, used when necessary in conjunction with the above details of management, is noteworthy in the treatment of patients with cardiac lesions and a poor cardiac response to the demands of exertion as well as in dealing with the subjects of dyspepsia.

L.J.P.

Acute Anterior Poliomyelitis.

Acute Anterior Poliomyelitis, or Infantile Paralysis, is a notifiable disease. During the past twelve years the notifications in this country have been as follows (1): (deaths shown in brackets):—

1921	488	(129)
1922	355	(109)
1923	587	(79)
1924	777	(122)
1925	371	(116)
1926	1159	(176)
1927	801	(112)
1928	452	(112)
1929	532	(85)
1930	506	(108)
1931	339	(63)
1932	656	(103)

Age and Sex Incidence.

The largest proportion of cases occurs between the ages of one year and five years (2). The case rate is higher among males than among females and this is true at practically all ages. (3)

Mortality.

This has varied from 10 per cent. to 25 per cent. in different epidemics (2) and in general is greater among infants under one year old and in the older age groups. (3)

Incubation Period.

Lapage (4) puts the commonest incubation period as from 5—8 days. This is borne out by experiments on monkeys. The International Committee (5) puts it at usually 7—14 days and rarely less than 6 or more than 18 days. In an epidemic in 1933 in Irlam there were two cases in the same house separated in onset by 5 days.

ETIOLOGY.

That the causative agent of epidemic poliomyelitis is a living virus was shown by experiments on monkeys by Landsteiner and Levaditi in 1909 and by Flexner and Lewis in the same year ; an emulsion of the spinal cord from fatal human cases of the disease produced characteristic paralysis when inoculated into Rhesus monkeys. The virus has never definitely been found in human spinal fluid but occasional positive results have been obtained with inoculation of cerebro-spinal fluid of monkeys. The virus has not been detected in human blood, but occasionally in the blood of monkeys.

It has been demonstrated in the naso-pharyngeal washings of cases of the disease at an early stage in human beings, and sometimes some months after the attack (active carriers) and in healthy contacts (passive carriers). The virus has been detected in the intestinal secretions and mucosa in fatal human cases, also in the tracheal secretions and mucous membrane, but not in human fæces ; it has been found in a few experimental cases in the fæces of monkeys. (3)

In 1913 Flexner and Noguchi described minute formed structures which they referred to as globoid bodies, cultivated by special methods from nervous tissue of human or experimental origin, or from filtrates. Cultivation was found possible in ascitic fluid. The bodies stained with Gram's stain. In a semi-solid medium minute colonies formed in pairs or chains or small masses of these globoid bodies (0.15 to 0.3 microns in diameter).

Not all cultures produced infection on inoculation into monkeys ; but some did, even up to the twentieth generation. Subsequent statements by Amoss and

Flexner in 1926 and 1928 threw doubt on the etiological relationship of these bodies but further reports by three investigators in 1930 and by Eberson in 1932 confirm the existence of such bodies and their pathogenicity when inoculated. (6)

MODE OF SPREAD.

The most widely accepted theory as to transmission is that the etiologic agent is a filterable, ultravisible virus; that this virus is carried and disseminated only by man; that in the infective stages the virus is present in the nasopharyngeal secretions; that it is conveyed from the sick to the healthy by these secretions, primarily through infective droplets sprayed about in talking, breathing, and coughing. (7)

It is now well established (8) that infection may be conveyed by:—

(1) persons suffering from an acute attack of poliomyelitis, especially in the early stages of the disease;
(2) individuals having a mild or atypical form of the malady;
(3) healthy persons who have been in contact with infection but have not themselves developed an attack and
(4) chronic carriers who have apparently quite recovered from a previous infection.

Spread of the disease by droplet infection from the above sources does not satisfactorily explain the sporadic cases, nor some of the outbreaks, such as the one investigated by the writer in Irlam in September, 1933. It is true that in some of the nine cases in this outbreak, nasopharyngeal discharge was observed as an early symptom, but there was an absence of contact or connection between most of the cases that does not fit in with the "droplet" theory. The weather was hot, dry and calm, the schools were closed, and most of the cases were very young children who mixed little with people outside the family. Many of the houses were situated on the edge of moss land—the fringe of which has been turned into well-manured allotments. Flies were exceedingly common in these houses in August and September, being particularly commented upon by the medical attendant of most of the cases.

It is a suggestive fact that poliomyelitis is most prevalent in this country at any rate, in hot, dry (fly) weather, its maximum prevalence coinciding with that of infantile diarrhoea. The tendency of the disease to a rural distribution, the small percentage of cases that can be traced to contact with previous cases, and the low incidence among those exposed to infection in institutions and families, are features common to insect borne diseases.(9)

The evidence for and against insect transmission is given in the International Committee's Survey of Poliomyelitis. They lay stress on the absence of virus in the human blood, upon the negative results obtained by injecting virus intravenously in monkeys, and on the failure of attempts to demonstrate the virus in extracts of insects which had fed upon humans or monkeys suffering from poliomyelitis.

It is further stated that in the returns made to the Local Government Board in 1918, insect bites were seen on 2.2 per cent. and not seen on 52.6 per cent. of the patients. (8)

These arguments do not appear very convincing to the writer as conclusive evidence against transmission by flies.

Is it necessary to suppose that the insect must pierce the skin and inoculate the virus into the human blood? It is also said that Musca Domestica, the house-fly, and Calliphora Vomitoria, the blue bottle, showed no trace of the virus when young larvae had been fed on infected monkey brain tissue and allowed to hatch out. But is it not conceivable, judging by the known habits of these flies, supported by experimental evidence (8) that they may carry the virus on their bodies or legs from the secretions of infected persons on to food already prepared for healthy persons in another household?

This introduces the suggestion of infection via the human intestine as a possibility and this is discussed more fully below.

J. Fine (10) mentions milk and other foods as transmitters of the disease and this is also discussed in the International Committee's Survey.

Stallybrass in reviewing reports of milk-borne epidemics of poliomyelitis occurring in Sweden, Spring Valley, New York and Broadstairs says "Although the conveyance of this disease through contaminated milk cannot be regarded as generally accepted, I regard the evidence as very strong." In Broadstairs, in a population of 15,000 in the years 1921-1926 only two cases occurred, both in 1925. In 1926 there were 62 cases between the 10th and 29th October. All the cases had milk from one dealer who obtained it from fifteen farms.

On the other hand there was abundant evidence of contact in these cases, chiefly in private boarding schools; no source of contagion was found at the farms or distributors, and many people drank the milk and remained well. (9)

In the Irlam outbreak the milk supply was investigated and found to be from several distinct sources.

It is not common for two cases to occur in one house.(4) In New York in 1931, out of 3,999 families affected, only 98 had a second case, three of these having a third case.(11) In an investigation into prevalence in Lancashire, only one instance of two cases occuring in the same house was reported (12) out of 172 cases spread over 10 years. In the Irlam outbreak a boy aged 3 years developed the disease on September 8th, and his sister, aged 11 months, on September 13th.

Poliomyelitis rarely causes institutional outbreaks. Ten cases occurred in a Home for Hebrew Infants in New York in 1923 in children under 3 years of age. In Broadstairs 34 cases occurred in private boarding schools in one month in 1926, but there is some possibility that these were due to milk infection.(9)

Few other institutional outbreaks are recorded, and secondary cases occurring in hospitals are practically unknown, in spite of cases being admitted to general wards.(13) In fact, it may be said that the lack of obvious connection between cases of poliomyelitis is one of the striking and constant features of the disease. Only occasionally is it possible to obtain a history of exposure to a previous case.

IMMUNOLOGY.

While the sudden "explosive" character of many outbreaks is a noticeable feature, their equally sudden cessation is of great interest and not to be explained solely by the enforcement of isolation of the cases.

The explanation is probably to be sought along the lines of natural and acquired immunity. It is stated that less than 5 per cent. of children exposed to infection acquire the disease owing to immunity(10) or 1 per cent., according to Aycock, if the disease is not specially active.(12)

How is this immunity acquired? One suggestion is that upwards of 100 people acquire an immunity to the virus of poliomyelitis by unrecognised subclinical attacks to every person who develops paralytic symptoms. It may be that some of the obscure febrile attacks and catarrhs of childhood are reactions of the child to the viruses of this and other diseases, and are of the greatest importance in establishing lasting future immunity to them.(12)

Neutralisation tests on virus, using the blood of those exposed during an outbreak of poliomyelitis, but who escaped the disease, have, according to two English observers, given support to this theory. Their results are comparable with Dudley's findings in Diphtheria, namely, that immunity does not develop unless the disease is present clinically in the community.(14)

Kramer and Aycock and other American investigators claim that their neutralisation tests support the view that effective contact with the immunising virus does not take place at the time of epidemics, but is apparently a more or less continuous process extending throughout the year.(15)

A study of the data in Lancashire and in the recent outbreak at Irlam suggests that it is possible to conceive of the virus being widely spread and of such low virulence locally as to give rise to latent epidemisation on a large scale without clinical cases occurring; an increase from some cause in the activity of the virus might give rise to an outbreak such as occurred in Irlam, or to the puzzling sporadic cases at other times, the limitation of the outbreak being due to the large number of persons with acquired immunity in the district.

This point as to the possibility of widespread immunisation taking place in the absence of clinical cases is of interest in view of the difficulty in explaining (in another connection) how it is that in isolated communities where diphtheria has been unknown for many years, Schick testing has shown a high rate of immunes.

For example, diphtheria outbreaks have been very rare during the present century among the Eskimos, although some were reported in the last century. Recent Schick testing of Eskimos has shown a percentage of immunes only slightly less than obtained in localities where diphtheria is common; the results of throat swabbing of 329 Eskimos in 1930-31 showed typical diphtheria bacilli of a weakly virulent type present in a number of cases.(16)

These researches indicate that latent epidemisation is going on with bacilli of such low virulence that clinical cases do not occur. It is possible that something of the same sort may occur with the virus of poliomyelitis.

PATHOLOGY.

The view has recently been expressed by Walshe (17) that the virus enters by the axis cylinders of the olfactory bulb and spreads through the nervous system by axonal channels. While the majority of investigators favour the theory that the portal of entry is the naso-pharynx, there are others who also feel that the evidence is strongly in favour of an access by way of the digestive tract, at any rate, in many cases.

It was first suggested in 1898 and Wickman concluded that the gastro-intestinal was the more probable route of infection in man.

In the epidemic in Westphalia, Krause in 1909 reported that in 90 per cent. of the cases the onset was marked by gastro-intestinal disturbances. In 8 fatal cases autopsy showed a striking change throughout the intestine, especially of Peyer's patches, and of the solitary follicles, most marked round the ileo-coecal valve, and the mesenteric nodes were swollen. He concluded that epidemiological, clinical and pathological findings indicated the intestinal tract as the portal of entry. After passing along the digestive mucosa, according to Kling, Levaditi and Lepine, in 1929, the virus travels towards the central nervous system along the "filets" of the abdominal sympathetics.(18)

From a study of 134 autopsy cases in New York City in 1931 Smith concluded that the lymphoid tissue of the lower ileum and the adjacent lymph nodes were the first to show evidence of the disease. "The Payer's patches were inlarged, injected, and in many cases actually ulcerated." It seemed to him, therefore, "that the gastro-intestinal tract is probably the usual portal of entry of the infection."(18)

Is it not possible that widespread consumption of food or milk, infected by the virus of poliomyelitis (perhaps through fly contamination, from cases or carriers) may account for the equally widespread immunity developing?

This would be akin to what is believed by some to occur in bovine tuberculosis: the ingestion of milk infected with the bacilli in a degree insufficient to cause clinically recognisable disease leading to mild reactions that build up a partial or complete immunity against future infection. As to the relationship of polio-encephalitis, Price(19) classes it as the cerebral type of poliomyelitis, and this appears to be the view taken in the Survey by the International Committee on Infantile Paralysis.(3)

TREATMENT.

Limitations of space allow of only two general observations:—

Value of convalescent serum.—Purdon Martin contends that the great expectations aroused have not been justified in later practice: the recognition of the preparalytic stage led to the use of serum upon many cases of the mild abortive type which would have recovered without the use of serum. Hence the credit was given to the use of serum for many recoveries in this class of case.(20)

A group of 1,000 cases, diagnosed in the preparalytic stage, with approximately half the cases treated by convalescent serum, and half the cases as controls, showed nothing to indicate the therapeutic value of the serum, either in reducing case fatality or in preventing paralysis.(21)

Physiotherapy.—The early care of paralytic muscles is a matter of extreme importance as a lack of proper care in the early stage may lead to lasting disability. Weakened muscles should not be allowed to stretch, nor the opposing muscles to contract. Physiotherapy, including massage and exercise, should not be begun until the acute stage has subsided.

As soon as paralysis appears there must be complete rest and immobilisation of the muscles and joints involved. In this way pain is lessened, and the overstretching of paralysed muscles and contracture of opposing muscles, the chief cause of deformity, is prevented. The period during which rest and immobilisation are indicated usually lasts about three weeks.(21)

PREVENTION.

If the views suggested in this article are tentatively accepted, it is reasonable that especial precautions should be taken in the hot summer months, particularly to safeguard milk and other foods of children against fly contamination.

Cases of the disease should not only be isolated, but all articles infected by the nasal secretions thoroughly disinfected—paper handkerchiefs should be used and burned. During August and September in particular all cases of illness in children with a temperature of 101 deg. and above, lasting more than a day, accompanied by a semi-comatose condition, or with a history of "screaming fits" should be viewed with suspicion, and irritability of the neck muscles (retraction of the head) looked for from the second day onwards.

An isolation period of three weeks from onset of febrile symptoms is recommended, and a similar quarantine for children exposed to infection, and exposed adults, in so far as their occupation brings them into contact with children or involves handling food stuffs.(22) During an epidemic it is inadvisable for children to mingle in crowds. Gargling with antiseptics is now regarded as harmful as a prophylactic measure as it may destroy the virucidal power existing in the normal secretions of the nasopharynx, but normal saline may be used.

A.V.S.

REFERENCES.

(1) Annual Report, Chief Medical Officer of the Ministry of Health, 1930., p. 70; 1932, p. 66.

(2) Ministry of Health Memorandum on Acute Poliomyelitis, No. 166. Nov., 1932.
(3) Poliomyelitis. A Survey by the International Committee for the Study of Infantile Paralysis. 1932.
(4) C. Paget Lapage. "Encephalitis, Polio-encephalitis and Vaccinal-encephalitis in Children." B.M.J., 13th May, 1933.
(5) Poliomyelitis Survey. Ibid., p. 345.
(6) Ibid., pp. 42—44.
(7) Ibid., p. 442.
(8) Annual Report, Chief Medical Officer of the Ministry of Health, 1926, pp. 96—98.
(9) Poliomyelitis Survey. Ibid., 465—478.
(10) J. Fine. "Filterable Virus Diseases in Man," pp. 76—80.
(11) Poliomyelitis Survey. Ibid., p. 362.
(12) Percy Stocks. Journal of Hygiene. Vol. xxx. 19th April, 1932. "On the Incidence of Encephalitis Lethargica and Acute Anterior Poliomyelitis in Lancashire and Elsewhere."
(13) Poliomyelitis Survey. Ibid., pp. 368—370.
(14) Ibid., pp. 338—339.
(15) Ibid., pp. 448—9.
(16) J. Ralph Wells. American Journal of Hygiene. Nov., 1933. "The Origin of Immunity to Diphtheria in Eskimos," pp. 629—671.
(17) F. M. R. Walshe, "A Paper on Poliomyelitis," B.M.J., 30th December, 1933, p. 1197.
(18) Poliomyelitis Survey. Ibid., pp. 257—258.
(19) F. W. Price. "A Textbook of the Practice of Medicine," 3rd Edition, 1929, p. 165.
(20) Purdon Martin, "The Bearing of Recent Work on Certain Aspects of Poliomyelitis." B.M.J., 30th December, 1933, p. 1200.
(21) Poliomyelitis Survey. Ibid., pp. 240—243.
(22) Ibid., p. 216.

The Action of Phenacetin in Broncho-Pneumonia.

Attention has recently been drawn to the action of pyramidon in cases of measles. The action is entirely unexplained, but other observers seem to have supported the original clinical reports.

I wish here to draw attention to a somewhat similar action of a closely allied drug in a not altogether dissimilar disease, I refer to the action of phenacetin in broncho-pneumonia of children. I first used it over 18 years ago in a very severe case of right apical broncho-pneumonia with marked meningismus, previously having found a slight reference to it in an ancient edition of Holt's Diseases of Infancy. The effect in this case was dramatic—in a few hours the child was better, in a few days he was well. My next case was equally satisfactory, and I have used it in practically every case of broncho-pneumonia I have had since.

I have in all cases used it with caffeine in the proportion of one part of caffeine to four of phenacetin, as in the familiar Tab. Phen. Co. Broncho-pneumonia is usually considered to be a dangerous disease, but in the eighteen years which have elapsed since I first commenced to use phenacetin I can only recall losing three cases. One of these, I know now, was probably due to under dosage, one was a small babe with whooping cough, bad broncho-pneumonia and hyperpyrexia who died 36 hours after I first saw him, and the other I am at a loss to account for.

As in all therapeutics, correct dosage is most important, and from the text-book standpoint the dosage is heroic. The rule is simple. Give one grain of phenacetin (with the caffeine) for each year of age up to four, this dose to be repeated every four hours. A babe of six months will easily take ½ grain phenacetin every three hours. If this dose is not enough it should be increased until the temperature becomes normal. 24 hours after this event it may cautiously be diminished. To obtain satisfactory results in bad cases the dose given may have to be largely exceeded. The worst case—for dosage—that I can remember was a child of 13 months whose temperature would not come down and who rapidly went down hill. Finally it had one grain of phenacetin every hour for 36 hours, the temperature became normal and the child made a good recovery. At times one wonders whether the blueness of a bad case is due to the disease or to the phenacetin, but while some of the phenacetin series of drugs can cause blueness (notably antifebrin) I am convinced that in broncho-pneumonia anyhow phenacetin is only helpful.

Quite apart from their use in treating broncho-pneumonia, I am sure that phenacetin and caffeine have a definite prophylactic action in respiratory troubles. A very useful adjuvant in either case is syrup of chloral which gives the child rest, facilitates nursing and prevents tossing about, and this reduces the chances of catching fresh chills.

I realise that in treating broncho-pneumonia in this way as a single clinical entity I lay myself open to much criticism. My sufficient answer must be that in practice the various types of broncho-pneumonia, including those secondary to measles, whooping cough, etc., have all responded well to the exhibition of phenacetin and caffeine, together, of course, with any other suitable treatment.

W.N.L.

Intramuscular Injections of Quinine in Lobar Pneumonia.

Five years ago my attention was directed by an article in the "Medical World"* to the excellent results following the intramuscular injections of Quinine in arresting attacks of Lobar Pneumonia.

The first patient on whom I tried the treatment was a man of 68 years of age, suffering from an acute and well-marked pneumonia with dullness of the right base and blood-stained expectoration, temperature 104·0° F., with every indication of being a very severe case. I gave the first injection within twenty-four hours of the onset, and repeated it each day till three doses had been given. After the second injection there was a fall of temperature and improvement in the patient's condition all round. On the day of the third injection his temperature and pulse were normal and so continued, though the cough and rust coloured expectoration persisted for ten days or a fortnight.

* August 24, 1928.

Since then I have used the treatment in every case of pneumonia I have met with in practice, and though the results have not always been quite as spectacular, still I can say that, given an early case of pneumonia (first or second day), I have come to expect resolution from the third to the fifth day of the disease. In cases of pneumonia in alcoholic subjects and in pneumonia associated with influenza I have been disappointed in the results.

I have lately been giving two injections of 2 c.c. for the first two or three days, but not continuing after the temperature has fallen. I have never had any bad symptoms from the injections. They are non-irritating and painless.

It is only fair to say that in a very few cases the course of the disease has run its ordinary duration.

In every case I have Antiphlogisten applied as hot as can be borne and repeated twice daily till the temperature comes down. This I have used for twenty years.

W.R.J.G.

The preparation I used was "Solvoctun," a non-irritating solution put up in 2 c.c. ampoules, each ampoule containing 0.5 grain of Quinine, prepared by E. H. Spicer & Co. One ampoule should be injected into the gluteal region each day for three days.

"The Parable": A Case of Paramyoclonus Multiplex.

This is perhaps a sufficiently uncommon disease for an example of it to be put on record. The disease is described as characterised by simple sudden movements of either a single or several muscles. In the latter case the distribution of the contraction is not determined by that of the nerve supply. The movements are often symmetrical upon the two sides of the body. The arms are more often affected than the legs. The text book description I am quoting applies up to that point to my patient; but, when it goes on to say that the movements have no resemblance to volitional movements and are entirely destitute of rhythm, it is inapplicable. For my patient's movements were exactly those of a farmer sowing broadcast.

That this singular movement characterised his condition and excited the same comparison in the minds of all those who saw him is illustrated by the soubriquet by which he went, "the Parable," an allusion to the parable of the sower.

I believe the pathology is uncertain, the cells of the hemispheres (suspected because the disease may be associated with epilepsy), the lower motor neurons and the parathyroid having severally been incriminated. One case is on record in which thyroiodin did good.

E.C.G.

Case of Paramyoclonus Multiplex.

A farmer's daughter, aged 29, apparently in good health, consulted me in 1918 owing to the fact that she was having spasmodic twitchings of the arms and legs. She stated that the condition had come on after an attack of influenza. She was unable to sleep and complained of intense headache. A diagnosis of Paramyoclonus Multiplex was made and she was treated with sedatives and hypnotics with very little success, though there were remissions succeeded by exacerbations of the condition. In 1920 she was seen by a consulting physician, who advised arsenic, electricity and massage; and took her into hospital. After this she improved for a few months; but the condition again became such that she came into hospital on two occasions under my own care. She improved each time. In 1923 she married and, whilst pregnant with her first child, the condition again became worse, but improved after parturition. In 1927 she became pregnant again, with, once more, a return of the symptoms. After the birth of the child she again improved. Since then she has had several attacks lasting a few weeks; but in December, 1933, she had a more severe attack and had to go to bed. She describes the attack as follows: "Just as the spasm comes on, I feel as if I had a sharp pain, like an electric shock, all over me." She complains, too, of terrible dreams: she is always in great trouble and falling down terrible places.

If anyone reading this account should have had experience of similar cases, I should be very grateful of any suggestions that may be helpful, as I have not found any drugs of much avail, nor have I found in medical literature much beyond vague generalisations either on the pathology or the treatment of this disease.

J.B.H.

Haemophilia and Suppuration.

A discharged soldier, in the pink of condition, excited by having got work after dispiriting weeks spent seeking it, jumped a passing motor lorry, and went for a ride. The lorry, lurching over a man-hole, bumped him off. His injuries were dislocation of the thigh joint and compound fracture of the upper third of the femur. I reduced the dislocation; but the wounds were heavily infected. They not only failed to heal but for months "pumped out pus by the pint." Autogenous and stock vaccines, used on the advice of a surgical colleague, made no impression. The man's condition became so grave that death appeared inevitable.

It was at this stage that a man came into my surgery one Sunday with excessive bleeding from a tooth socket. The tooth had been extracted the previous night. He happened to mention that the patient with the fractured thigh was his nephew. The possibility that uncle and nephew might share some inborn peculiarity of metabolism, exhibited in the one as haemophilia and in the other as deficient powers of immunity, crossed my mind. I determined to act upon the idea, and visited the cottage hospital that night. The ex-soldier seemed beyond hope; but none the less I ordered a course of calcium lactate tablets. He eventually recovered, and I attribute his recovery to the lime medication. He is now in good health but with a slightly shortened leg.

J.B.M.

Complete "Hysterical" Anaesthesia in a Man.

The history and present condition of D.L., aet. 42 years, although probably not unique, is interesting and puzzling on account of the complete insensitiveness of his skin. He is a labourer, employed in patching up canal banks. His work involves no mental strain. He is married, his wife and three children being vigorous and healthy.

The man is lean and muscular, his cheeks sunken and pale, his walk steady. There is no muscular tremor. His eyes are clear and steady. The fundi are normal. There is no evidence of organic disease, except of the nervous system, which I will deal with later.

In his family history there has been nothing outstanding. His father died of valvular disease of the heart and his mother of an "ulcer in her throat." His brothers and sisters are all healthy.

The patient's previous record is as follows. For some years up to 1929 he suffered from "gastritis." In 1929 he had all his teeth out and this was followed by a general septicaemia which incapacitated him for seven weeks. In 1932 he was admitted to Manchester Royal Infirmary where, after X-ray examination, "a chronic appendix" was removed, together with a mass of tuberculous glands. It was many weeks before he recovered from this operation and the foundations of his present condition seemed to have been laid during the days of this long convalescence.

His primary idea—an unwillingness to work—appeared to become an obsession. He complained bitterly of pain over the scar, which pain radiated all over the abdomen.

In spite of his numerous complaints, he was sent back to work. For some weeks I did not see him. At the end of this time he came one night and asked me if it were possible for a man to work who had no intestines. He stated that his intestines had been removed in Manchester Royal Infirmary, that his bowels never moved and that his food simply dropped inside and stayed there. In the course of a fortnight his complaints became legion. He stated that he had no lungs, no heart, brain, blood and no feeling of any kind. He was never hungry or thirsty, never in the least tired, never slept and all his bodily functions were in abeyance.

Examination again revealed the absence of any physical signs. His nervous system in all respects was normal, with the exception of the absence of sensation now to be related and of the mental condition associated with this singular want of feeling. The skin, mucous membrane and conjunctivae seemed to be completely analgesic and anaesthetic. It was possible to pinch, crush, cut, burn and otherwise maltreat his skin without causing any reaction, or any sign that the process was painful. The patient himself demonstrated to me his abilities in this direction. He burnt the end of his finger with a lighted match; he clipped a safety-pin through the skin of his abdomen, testicle, forearm and hand; he rubbed furiously at his conjunctivae with his finger; he placed the lighted end of a cigarette against his tongue and to each and all of these tests there was no registration of pain. He remarked that he could not feel anything touching his skin, his sole means of knowing that anything was in contact with his epidermis being his eyesight. His conclusion was that he was dead and nothing could convince him that he was not so. He has remained in this condition since 1932.

He has been examined by an alienist, who agreed that there was no organic basis for his condition. His blood and cerebro-spinal fluid both give a negative Wasserman.

Treatment so far has produced no betterment in his condition. He has been given large doses of sedatives and all kinds of persuasion have not shaken him in his belief that he is dead.

The alienist suggested that an attempt might be made to hypnotise him. So far it has been impossible to carry this out and the patient is still in the fortunate or unfortunate condition of being unable to feel anything or experience pain.

R.A.N.

A Method of Curing Malignant Tertian Fever, when there are Crescents in the Blood, by increasing doses of Arsenic.

In 1917 I was in medical charge of Bazaar Hill Camp, Wellington, India, and the camp was supposed to contain only convalescent malarial cases, from 300 to 400, although I think a good many were heat-stroke cases from Mesopotamia.

There were many cases whose blood contained crescents, and who had been in and out of hospital again and again. As everyone knows, when crescents are present a case cannot be cured by quinine alone. It occurred to me to try what was known in my young days as ''A course of arsenic,'' of course in conjunction with quinine.

The course began with Liq. Arsenicalis m v. t.d.s. The dose was increased by m j every week until m viii t.d.s. were being taken, and after a week of that the dose was decreased by m j every week, until the original dose of m v was reached, and this was continued for a week.

I had no chance to take away with me records of my cases, but I think I am right when I say that every case that went through the course was cured, and many of them had resisted treatment for years. Of course, this treatment takes seven weeks, but for ease of administration it is obviously far preferable to intravenous injection of antimony, which was being used.

H.P.

Phthisis: The Wide Outlook.

In response to a request for a contribution to the symposium recognising the great services of Sir William Hodgson I thought a few remarks on the relations of the profession to one particular disease, tuberculosis, might be suitable.

For over half a century Sir William has helped the public by sound advice and treatment in the capacity of general physician, to their great benefit. Without neglecting this important work he has found time to take a prominent part in local administration and has risen to the honourable position of Chairman of the County Council, where his great knowledge and wise counsel are still at the disposal of the residents for their material benefit and prosperity.

In both these offices he has come intimately in contact with the problems of prevention and treatment of disease, and has contributed largely to the very satisfactory condition of health of the county and the reduction of sickness and mortality. In no disease has this reduction been more remarkable than in tuberculosis.

Osler described Phthisis as the "Captain of the men of death" and a diagnosis of the condition usually meant early death for the unfortunate victim and almost invariably for the younger members of his family. A few years ago it headed the list of causes of mortality, yet to-day it has lost this sinister pre-eminence and in Cheshire finds itself fifth in the list of killers, heart disease accounting last year for practically four times as many. Just three times as many succumbed to cancer, and almost identical figures were the victims of cerebral haemorrhage.

In 1880, when Sir William qualified, the death rate per 1,000 for England and Wales for both sexes was 2·13 for pulmonary tuberculosis and 0·75 for non-pulmonary. Since 1880 the number of deaths has diminished, falling steadily year by year except during the war period, but resuming its fall at an even rate in 1919 until 1932, when the crude death rate was 0·687 per 1,000 for pulmonary and 0·15 for non-pulmonary tuberculosis, the lowest ever recorded. There is every prospect that 1933, when the figures are available, will show a further reduction. In other words, the number of deaths from pulmonary tuberculosis has diminished in this period to less than one-third, whilst non-pulmonary has dropped to one-fifth.

In Cheshire the decline in the number of deaths has followed a similar course, from 445 pulmonary and 210 non-pulmonary in 1914 to 367 and 93 respectively in 1932, or 0·53 pulmonary and 0·13 non-pulmonary per thousand of the population. These figures compare very favourably with those of the entire country when the large proportion of the population engaged in industrial occupations is remembered.

In his annual statement for 1932, the Chief Medical Officer of the Ministry of Health states:—
"The fall in mortality from tuberculosis does not affect all ages or both sexes equally. For instance, mortality from pulmonary tuberculosis has declined most rapidly in childhood and after middle life, and least in young adult life. Again, the fall in mortality from pulmonary tuberculosis in males is apparently tending to become less rapid than in the earlier years of the century. Mortality in young adult females increased considerably during and after the

War; it appears now to have declined to the level recorded in the immediate pre-War years. After middle age, mortality from pulmonary tuberculosis has declined more rapidly in females than in males. The figures of the last decade suggest that the rate of decline at this time of life among males may be tending to become slower. Still more remarkable has been the decline in non-pulmonary tuberculosis, the death rate of which has fallen by 37 per cent. in the last ten years."

With the fall in the death rate there has been a corresponding decline in the number of notifications of new cases. In Cheshire, in 1921, 644 cases of phthisis were notified. In 1933 this had fallen to 482. Conversely the numbers undergoing institutional treatment had risen from 526 in 1919 to 1,139 in 1932.

In 1914 a scheme for the prevention and treatment of tuberculosis was formulated, based on the recommendations of the Astor Departmental Commission, and this as a result of the experience gained since has been developed and greatly improved. The genius of the English race for compromise is well illustrated in the system now in use, and it is largely due to the personal experience and tact of Sir William that it has met with so much success. Generally the entrance of the Local or the State authority into the field of medical treatment meets with strenuous opposition; but none arose here as the general practitioner was given an important position in collaboration with the officials and does not feel he is being deprived of his patients.

Where a diagnosis is made, or a suspicion of a case arises, he can obtain, free of charge, the services of a Consultant Tuberculosis Officer experienced in the various manifestations of the condition who will advise him on the treatment desirable, either domiciliary, under the patient's own medical adviser, or in an institution specially designed for the purpose.

Thus the best characteristics of the three types of practitioner are utilised: the general practitioner takes charge of the chronic and quiescent cases, the specialist with the aid of properly equipped hospitals and sanatoria the medical and surgical treatment of the early case during its active stages, until quiescent, and of the advanced case till death; and the consultant officer confirms diagnosis, undertakes general supervision of the patients, and performs the administrative duties under the regulations.

One of the most intriguing medical problems of the age is to discover to which factor or factors can be attributed the striking reduction, still in progress, in the morbidity and mortality rates of tuberculosis. Laennec, himself a victim of this fell disease, said: "Nature often cured tuberculosis; but the physician seldom played any part in the cure."

During the half century covered by Sir William Hodgson's medical experience, he has seen many new remedies and forms of treatment introduced, all heralded by wonderful promises of success and all following the same course: Koch's discovery of the tubercle bacillus and production of tuberculin which was to revolutionise treatment; Erlich's sterilisa magna; Sphalinger's vaccines; gold cures; artificial pneumothorax; and surgical interference; with all the pamphlets from the patent medicine vendor which are part of the equipage of our breakfast tables.

There is a remarkable similarity in the virtues claimed for each 'cure' and the enthusiasm with which it is received by the younger members of the profession; but more still in the final summing up that it is of benefit "in certain types of cases," the cases in question being those of the simple ulcerative sort which any general practitioner can usually assure of early quiescence under simple treatment.

In considering the problem of tuberculosis it is usual to discuss the seed, and the soil; but two other factors must also be taken into account, the dose of the seed, and the environment. Taking these separately there is no evidence to show that the tubercle bacillus has changed in virulence or virility since its discovery by Koch. Much time has been expended in research work and valuable information obtained. We know the features of the four main groups, human, bovine, avian and piscine, and the cultural characteristics and infectivity for the different animals; but we have not yet clearly discovered either how or when human infection takes place or even the incubation period.

There is little doubt that the amount of infective material available for the reproduction of the disease has diminished and is diminishing. Educational and sanitary methods, with the habits inculcated during institutional treatment, have removed a very potent source of danger, indiscriminate spitting. This has become almost as rare as drunkenness; whilst improvements in ventilation and admission of sunlight to the home have prevented the extermination of the tuberculous family by spread of infection.

The improvement of environment in its broadest sense has done much in the campaign for prevention and treatment, better food, better housing, better clothing, better workshops, healthier amusements, shorter working hours and hours for rest have all contributed. If a graph of the mortality rates for the past fifty years be examined, only one definite break occurs in the regular decline, i.e., during the war period when food was scarce, hours of work were long and recreation rare; and with the release from the war regulations the fall resumed its normal course. No other change can be traced in the curve to signalise any new discovery, line of treatment or improvement imposed by legislation. No proof exists of their special influence.

Finally the soil. Has our resistance to the invasion of tuberculosis altered from that of our parents?

Jonathan Hutchinson taught that "Civilisation meant Syphilisation," that an hereditary partial immunity was the result of infections treated in our ancestors. The work of Professor S. L. Cummins showed that the troops from countries where tuberculosis was rare suffered from a more acute type of the disease, with a greater incidence, than European, American or Colonial troops with a longer history of infections.

There is little doubt that phthisis is changing in character. To-day we find that on first notification the proportion of cases showing advanced physical signs is much greater than a decade or two since; this is not due to any failure on the part of the practitioner to make an early diagnosis, but to the fact that the patient has frequently not found it necessary to give up work or report ill. Unfortunately the onset is growing more insidious and he is able to carry on without serious symptoms until the disease is well established.

Further, cases of "galloping consumption" are now almost unknown and by the modern novelist, in contrast to his Victorian predecessor, little reference is made to them.

I have tried to summarise a few of the salient features of the campaign we are engaged in with the problems involved. Some beneficent influences are producing wonderful effects, and even if we fail to recognise which, or quarrel as to their relative importance, the results obtained justify the work done by our profession.

A.A.

A Point in Prognosis.

In very advanced phthisis, when emaciation is extreme, the patient's friends often endeavour to pin one down as to how long he is going to last.

I have noticed that as a general rule such patients do not die until œdema of the feet has appeared and I have learned to look for this sign. As soon as I observe it, I give the friends notice that they can expect the end very shortly.

I know that there is nothing original in this; but it is well worth remembering. I find it safe to tell the friends in cases where œdema has not shown itself that the end is not yet.

R.T.T.

Twenty Years' Experience of Non-pulmonary Tuberculosis at Leasowe Children's Hospital.

Twenty years' experience in a hospital chiefly devoted to the treatment of surgical or non-pulmonary tuberculosis in children has convinced me that, whilst such a hospital can play only a small part in the national campaign against tuberculosis, that part is of importance. Four thousand fresh cases and two thousand deaths result annually from this cause. The figures give a measure of the suffering and invalidity engendered and of the crippling and deformity inevitable in the absence of early treatment.

In order to secure good results it is essential that early diagnosis of the disease should be made. This lies in other hands than those of the hospital staff.

It is soon realised also that relapse or recrudescence may occur after discharge from hospital if following up of cases in the homes and relief of economic distress be not available, and also that further assistance may be required in cases where the labour value has been impaired by crippling, if the best return is to be secured for the money expended on treatment.

These measures again lie outside the sphere of the medical staff of the hospital, but until the Utopian ideal of prevention of infection and spread of disease is secured, the open-air hospital will still play its part in securing the arrest of the disease by its general methods and the prevention of deformity and the limiting of crippling by its treatment of the local lesions.

The basis of all treatment is the conception that the disease to be treated is a general one (a general invasion of the body by the tubercle bacillus) of which the apparent or obvious lesions are but localised manifestations, and therefore treatment must be considered which will be effective against both the invasion and the infection of particular parts.

The general treatment comprises a life in the open air, with rest in bed and a suitable and adequate diet; a disciplined life and, for a child, the discipline of school life is ideal and can easily be incorporated with that of the life in hospital. The hospital therefore should be a hospital school.

The vexed question of the situation of such a hospital school and the arguments for altitude or sea-coast sites have been much simplified by the work of Sir Leonard Hill and it is sufficient to say that a fresh air life, free from the smoke and dust of cities, can provide the ideal. It is of advantage that the climate should not vary greatly from that of the child's home life.

The aims of this general treatment are to build up the resistance of the body against the invading organism—the virulence of the germ and the resistance of the soil having been the deciding factors in the production of the disease. Every effort, therefore, must be made to stimulate the body resistance and in the past twenty years many methods have been tried. Natural and Artificial Sunlight, X-Rays, Radium and Radio-active therapy, Vaccine therapy, Chemo-therapy and Balneo-therapy have all been tried without the discovery of a panacea, and if one may venture an opinion the advantages of a simple fresh-air life as a stimulus to basal metabolism and the judicious use of "general artificial light" baths produce the best results.

The chief aim of the treatment of the local manifestations is to secure rest to the affected part in order to preserve the anatomical formation and to prevent the onset of deformity. Many schools of thought exist, all differing in detail but similar in basis and if their doctrines be conscientiously carried out for a sufficiently long period all produce good results.

Many operative proceedures have been devised to attempt to shorten the duration of treatment; but it cannot be said that they have succeeded. And this is natural, since success can only be secured by attacking the general invasion of the body as a whole. The operations of bony fixation of the spine, the early fixation of the hip and knee joints are chiefly concerned with the prevention of deformity; and in children ought not to be necessary if treatment be begun in the early stage and if supervision after leaving hospital be carried out for a sufficiently long period.

The results achieved from treatment can be summarised after twenty years' experience, which enables one to say that in 80 per cent. of all cases recovery can be secured unless the delay in providing adequate and continuous treatment has been prolonged. This figure varies from one of 74 per cent. in cases of Tuberculous Spine, through 93 per cent. in cases of Tuberculous Knee to one of 99.9 per cent. in cases of Tuberculous Adenitis. The mortality rate is heaviest in cases that manifest symptoms before the age of one year, 93 per cent. of which cases terminate fatally. Improvement is shown as the symptoms appear later in infancy.

37 per cent., 15 per cent. and 7 per cent. are the figures when manifestations are first shown between 1 and 2 years, 2 and 5 years, and 5 and 12 years respectively.

This brings in the question of the source of infection. As I mentioned at the beginning of the paper, there are still 2,000 deaths and 4,000 fresh cases annually. Whereas it used to be taught that the majority of cases of tuberculosis in children were of bovine origin, the latest figures (given by the People's League of Health) claim only 6 per cent. of all tuberculous deaths as being due to the bovine bacillus. Recent work has claimed that the bovine bacillus has a low invasive power compared with its human relative, and this fact may easily explain the multiple scattered lesions and the high mortality rate shown in very young babies, since human infection might be expected to be commoner at this stage of life.

The permanence of the results claimed must be checked; and this has been done in Liverpool over a period of years—1920 to 1926. It was found that in 74 per cent.—86 per cent. of cases the cure was permanent, and that, when relapse occurred, it was attributable in the majority of cases to poor economic conditions.

The chief difficulty of the Medical Staff of the hospital is the establishment of the tuberculous diagnosis. The Von Pirquet and Mantoux reactions are excellent, but only of value if a negative result be shown. The diagnosis of Tuberculous Ostietis, Adenitis and Peritonitis is often given as a safe refuge in case of doubt, and to correct such an error is not always an easy task. The mental recreation of the hospital staff is provided by these problems, and over many years research has been carried out. The presence or absence of the Tubercle Bacillus in the urine, faeces and in abscess contents has been investigated without helpful results save in the case of the urine. The view that the Tubercle Bacillus cannot be excreted by healthy kidney tissue was upheld. The assertion that treatment by prolonged immobilization and recumbency, associated with artificial light irradiation leads to the formation of urinary calculi was investigated by X-Ray examination of the kidneys and by estimation of the blood content of calcium and phospherus. It was not upheld. On the other hand it can be shown that irradiation of the body does lead to an increase in the mobilized calcium; and that, therefore, since immobilization in recumbency also produces decalcification of the bones, the question of irradiation in cases of Tuberculous Spine, Hip and Knee where immobilization over prolonged periods is required has to be undertaken guardedly.

Many suggestions claiming to illuminate the progress of the cases toward recovery and the prognosis of recovery have been investigated, such as the Arneth blood count, the rate of fall of erythrocytes or sedimentation rate and the urochromogen reaction; but although helpful, all these reactions were found to be too unstable and variable to be added to the permanent armamentatium of the routine work. The vexed and troublesome question of ketosis in tuberculous children and the functions of the liver in amyloid disease provided invigorating mental pastimes for leisure hours and helped to relieve that discontent which must always perturb the life of the enthusiastic member of the medical staff of a hospital such as is being discussed.

The Utopian ideal, prevention of infection, is kept constantly in mind by the hospital staff. Should it be realised and the stream of patients suffering from surgical tuberculosis dwindle, the institution could continue to serve the public by accepting general orthopaedic patients and such as are damaged by rheumatic and cardiac diseases.

T.H.M.

The Margin of Error in the Diagnosis of Advanced Pulmonary Tuberculosis based on a series of 306 post-mortem examinations, with particular emphasis on the possibility of the Pulmonary Condition being due to Carcinoma.

Several observers have recorded that in series of post-mortem examinations performed on cases diagnosed as advanced pulmonary tuberculosis, that a percentage varying from 11.5 to 5 were found to be non-tuberculous.

In this series of 306 it was not possible in 17 to demonstrate any macroscopic evidence of tubercle in the lungs or pleura at autopsy. The sputum of 59 of the 306 had been negative to tubercle bacilli, but in 42 of these tuberculous lesions were found in the lungs at post-mortem.

Of the 17 cases mentioned above, in 9 ante-mortem findings were considered to be against advanced pulmonary tuberculosis. Ten of the 17 were primary carcinoma of the lung and one a lympho-sarcoma of the lung.

At autopsy:

10 cases of primary carcinoma of lung.
1 case of lympho-sarcoma of the lung.
2 primary carcinoma elsewhere.
1 lymphadenoma.
1 congenital syphilis with multiple lesions.
1 chronic bronchitis and emphysema.
1 adhesive pericarditis (probably tuberculous) and endocarditis.

On analysing the 11 cases of malignant disease of lung previous to mors, 9 of the cases occurred in males aged 20 to 64, and 2 in females aged 55 to 62. The males had been engaged in heavy manual labour. The average duration of illness from first symptom to mors for 8 of these cases was 11½ months, in 2 cases 2½ to 5½ years respectively, and in one this fact could not be ascertained to any degree of accuracy. Eleven and a half months appears a rather shorter period than usually reported. The shortest period was 4 months—this case was one of lympho-sarcoma in a male aged 42 years. The first symptom noticed in 7—cough (i.e., 63 per cent.); in 3—hæmoptysis (i.e., 27.2 per cent.); in 1—dyspnoea (i.e., 8 per cent.). In 200 autopsies on cases dying of pulmonary tuberculosis at all ages, I sought for the initial symptom and found in 68 per cent.—cough, in 11.47 per cent.—hæmoptysis.

The chief complaint of the patient on admission was in 6—cough; 2—dyspnoea; 2—pain in chest; 1—malaise.

It was found that pyrexia was present in 8 cases and tachycardia in 10. Sputum occurred early in 6 cases and was present at some period in all. Staining of the sputum with blood occurred in 6 cases, but no case had a frank or fatal hæmoptysis.

Pleural effusion occurred in 6 cases. It is to be noted that the percentage of cases showing effusions at autopsy was 55 per cent. In autopsies on 200 cases of pulmonary tuberculosis at all ages over 15 years, pleural effusion was found in 11 per cent. only.

Pain on the affected side occurred in 8 cases and was accompanied by tenderness on that side at some time during the illness.

Marked clubbing of the fingers was found in 2 cases only. Dyspnoea was present in all cases. The weight was invariably below normal for age and height and in 6 there was marked loss of weight. In addition, individual cases presented such symptoms as pain and paresis of arm on the affected side, transient oedema of the chest wall, inequality of the radial pulses, laryngeal involvement and enlarged glands of the neck and axilla.

It appears reasonable from the brief analysis to point out that in a person over 45 years of age, who gives a negative history of previous chest disease and who attends complaining of a persistent cough of some weeks' duration, possibly accompanied by stained sputum; who is rapidly losing weight and getting short in the wind; who on examination presents an unilateral lesion in the chest characterised rather by the absence of clinical signs except a markedly flat percussion note associated with a definite feeling of flatness which persists even after removal of any effusion that is present, the sputum present being negative for tubercle bacilli on at least three examinations, and even if pyrexia and tachycardia are present, to consider, until a skiagram can be obtained, that the case is one of carcinoma of the bronchus rather than advanced pulmonary tuberculosis.

H.G.T.

Hilum Tuberculosis.

This term is used, as a convenient one, to include Tuberculosis of all, or any, of the different groups of bronchial glands, and no attempt is made to differentiate between them. It has been shown by many competent observers that disease of the bronchial glands is very common at all ages, particularly in children. Clinicians, however, with a few notable exceptions, have never made a serious attempt to show any connection between tuberculous disease of the bronchial glands and pulmonary tuberculosis. The essence of Parrot's law is that there is no affection of the lungs which would not be also present in the adjoining lymphatic glands; and, vice versa, there would be no change in the bronchial glands without analogous changes in the lung. This hypothesis is generally accepted; but the reverse has not been seriously entertained by the majority of clinicians. Ghon, in his painstaking and convincing work, shows that hilum tuberculosis is always secondary to a primary focus in the lungs, and that the focus, if carefully looked for, will always be found.

It is quite possible, however, that live tubercle bacilli can pass through the lungs to the bronchial glands without actually causing a lesion, as the lung parenchyma is fairly resistent to infection. I doubt very much if a few stray bacilli would be able to cause a lesion. They would be quickly removed by the lymphatics to the root glands. This, however, does not seriously affect the main principle of Parrot's Law. This primary focus, or infection, is generally believed to be due to live tubercle bacilli finding entrance to the lung, with the air stream. I have great difficulty in accepting the aerogenic path of infection, and consider that the lymphatogenic route is much more feasible. The inspired air passes along the irregular nasal cavity, protected by mucus and ciliated epithelium, and then strikes the posterior nasopharynx, with its mucus coating, passing on at an acute angle to the trachea and bronchi. Any infection in the inspired air will be almost certainly held up by the obstacles enumerated, removed by the lymphatics and so reach the lungs by the blood stream. From the lungs the infection would again be removed by the lymphatics and naturally come to rest in the root glands, where it may remain dormant for an indefinite period, depending on the general standard of health of the individual and a reasonable absence of gross infection, such as might be due to bronchitis, tonsilitis, etc. If any gross additional infection occur, the root glands would be re-infected, become inflamed and lead to a retrograde flow from the hilum along the lymphatics towards the periphery of the lungs. This, in my view, is the usual mode of infection and the way in which pulmonary tuberculosis becomes established in the great majority of cases. The course is naturally slow and may be spread over many years before a definite lesion of pulmonary tuberculosis is diagnosed. It is not, however, uncommon for a caseous bronchial gland to ulcerate through a bronchus and thus quite suddenly infect a whole lobe. I believe that miliary tuberculosis is due to a mass infection from a highly infected bronchial gland passing, via the lymphatics and the blood stream, to the lungs. This seems to give a reasonable explanation of the suddenness and widespread character of such infections.

If we accept the evidence produced, by many observers, that disease of the bronchial glands is common, are there any clinical signs denoting their involvement? If carefully looked for clinical signs are not very difficult to find. The small or moderate enlargement would produce few signs, and probably pass undetected, even by X-rays. The more seriously affected glands would certainly produce signs capable of clinical detection.

Owing to their close association with bronchi and blood vessels, clinical evidence of pressure is frequently found. Fulness of the superficial veins of the chest is significant. It is more commonly found on the right side than the left, but sometimes on both; and is probably due to enlargement of the tracheo-bronchial, or bifurcation glands. Spinal telangiectases, i.e., dilated venules over the spines of the upper dorsal vertebrae, are fairly common; but not, I think, of similar importance. In one case I found a general oedema of the whole lung area, which could only be due to some interference with the free circulation through the lungs; this assumption is supported by a complete recovery after a few months' absence from school. Evidence of pressure on a bronchus supplying air to a whole lobe, generally the lower lobe, is fairly common. The physical signs are: lessened expansion, weak breath sounds and granular breathing, with some slight impairment of the percussion note. Granular breathing I regard as very significant, and may be due to a moistness of the air cells just short of definite crepitations. Repeated examinations showed that this condition could persist for several months; but rarely caused much ill-health, and usually cleared up completely.

I feel sure that enlargement of the bronchial glands *does* produce secondary asthma. I have observed bronchial asthma in children for years, and have generally been able to detect evidence of enlarged root glands. Not only so, but as the bronchial asthma improved the evidence of hilum tuberculosis became less obvious. Most of these cases had the characteristic chest associated with asthma. An adult was under my observation with bronchial asthma for two years, without showing any evidence of pulmonary tuberculosis. This opinion was shared by a tuberculous officer and supported by a negative sputum examination. Suddenly, in a matter of hours, the patient became seriously ill, and a large patch of consolidation was found in the middle third of the right upper lobe. The sputum was now positive. On the other hand I have cured a case of bronchial asthma by suitable injections intended to influence the root glands.

In addition to this case of sudden extensive invasion of the lung parenchyma, I was fortunate enough to have three other cases in whom it occurred while they were under my observation as cases of hilum tuberculosis. In all three cases the onset was sudden and very extensive, and could only have been caused by a caseous bronchial gland ulcerating its way into a bronchus, and distributing its contents to the corresponding part of the lung. They were very ill with all the signs of an acute tuberculous toxaemia, and the sputum was positive. In one case, which was X-rayed, the infection was clearly traced to the root glands. In my experience the lower lobes are more frequently affected than the upper. This also applies to that much more common physical sign—a localised patch of crepitations—which is almost invariably found in the lower lobes, more frequently in the left and usually in the axillary region. There was rarely any difficulty in obtaining evidence of hilum tuberculosis. The crepitations were very fine, almost consonating, and heard at the end of inspiration only. The respiratory sounds were generally weak, owing to the modifying influence of the fluid in the air cells, and impaired resonance was found over the larger patches. All such children were obviously unwell, had a persistent cough, and complained of lassitude. A history of educational backwardness was always obtained. I regard these patches of crepitations as due to interference with the free circulation by enlarged broncho-pulmonary glands; this view is supported by the complete disappearance of those patches with a general improvement of health, when the evidence of glandular enlargement become less.

By far the most common sign of hilum tuberculosis, in the past and at present, is what has come to be known as the "right-apex phenomenon." I saw a typical case in an adult a few days ago. He came to me complaining of neuralgic pains over the right shoulder. He had no cough, but looked tired, although he assured me he felt quite fit. There was obvious fulness of the veins over the right upper lobe, marked retraction, impaired resonance, almost broncho-vesicular breathing, and a few adventitious sounds at the end of inspiration. This is probably an aggravation of a pre-existing condition, due to overwork, and the neuralgic pains on the same side are significant. The risk of this passing on to definite pulmonary tuberculosis is obvious. I have watched similar cases in children for years, many of whom enjoyed perfect health, while many others gave a history of frequent colds and irregular school attendance. In some all the signs completely cleared up, while in others they remained unchanged during school life. This condition can be explained by pressure of a bronchial gland, and such evidence was generally obtainable, over a prolonged period, the degree of permanency depending on the length of the period. The right apex was more frequently affected than the left. Incidentally, it has been shown, by post mortem evidence, that an apex can be infected by direct continuity from an adherent tubercular gland. There can be no doubt that enlarged bronchial glands do give definite signs of pressure, which can be detected clinically, as I have endeavoured to prove. It has been repeatedly shown that obstruction of the pulmonary artery, or its branches, can lead to collapse of the lung supplied. This has been given as an explanation of the increase of the paravertebral dullness, shown as a dull area extending to the 7th vertebra downwards, and to two or three inches from the middle line. This is further strengthened by the knowledge that the trachea bifurcates at the level of the third and fourth spines, in which situation the bifurcation glands lie, and they are the glands most frequently affected by tuberculosis. This sign is much more frequently found on the right side.

In this area, in cases of hilum tuberculosis, tracheal breathing can be heard over the spines down to the 6th dorsal. This sign is easy to detect and, in my opinion, of great value. Normally, tracheal breathing does not extend beyond the first or, at most, the second dorsal spine. Another important sign of root pressure is the narrowing of Krönig's isthmus, i.e., the area of resonance which can be mapped out by percussion above the clavicles. A narrowing of this area on both sides is of definite significance, although not conclusive, of deep seated pressure. If on one side only, the possibility of a local infection must be considered.

My observations have now covered the long period of twenty years, and I am more than ever convinced that hilum tuberculosis is very common in school-children, and by no means uncommon in adults. Anyone who has examined conscientiously, with careful notetaking, thousands of healthy chests, must be impressed by the evidence obtained, and its relation to the obviously abnormal conditions found. In several instances, as shown, direct infection from tuberculous bronchial glands to the lung parenchyma occurred; no other explanation seems possible. If we accept this path of infection, is there any reason to doubt that many others, of a less dramatic character, are due to secondary infection from diseased bronchial glands, and not, as generally supposed, due to a fresh infection? Miliary tuberculosis is more likely to be caused by secondary infection than by a fresh infection, of unknown origin.

In conclusion I will quote one case which came under my observation when acting as D.C.M.S. in the Ministry of Pensions. I had to visit a young farmer who was suffering from extensive pulmonary tuberculosis. He assured me that before joining the Army he enjoyed most perfect health, and his general appearance supported that statement. It is not likely that he was freshly infected during his period of service; a much more probable view is that the physical and mental strain to which he was subjected so lowered his resisting power that he became secondarily infected by an old lesion, lying dormant in the root glands.

D.J.G.J.

The Place of Tuberculosis Settlement in the After Care of Pulmonary Tuberculosis.

After the passing of the National Health Insurance Act, and the introduction of Sanatorium Benefit, the interest of the profession and the public in general in the subject of tuberculosis was greatly increased.

At first the supply of physicians with special experience in this disease was hardly adequate to the demand. During the last twenty years, however, there has grown up a large body of men who have been specialising in this subject with beneficial results to the community. The methods of examination to arrive at a definite diagnosis and the methods of treatment of all types of cases have improved.

The results obtainable with a good X-ray plant and modern technique in the preparation of radiograms have established the importance of this method of investigation in diseases of the chest.

An X-ray plant is to be found in the majority of modern dispensaries and sanatoria, or, at any rate, full use is made of any available installation near by. It is a brave man who will nowadays ignore the assistance of this method of investigation in arriving at a diagnosis in a difficult case of suspected pulmonary tuberculosis.

Routine sanatorium régime in a suitable institution is the basis of our treatment of pulmonary tuberculosis.

The use of X-rays has made it possible to observe the progress and results of special methods of treatment; artificial pneumothorax, phrenic evulsion, artificial pneumothorax for one side with intravenous injections of Sanocrysin for the other have all proved useful in certain cases.

With the introduction of these modern methods, the institutional treatment of the disease is tending towards pulmonary hospital treatment under sanatorium conditions.

Notwithstanding the undoubted progress in diagnosis and treatment of the disease, it still presents one of our gravest problems owing to the frequent relapse of patients who require further institutional treatment.

Every practitioner is familiar with the picture of the consumptive having to return at intervals to a sanatorium for further institutional treatment until at last he no longer emerges from the sanatorium to join his relatives, or if he does, it is to die at home.

Why does the patient relapse in this almost regular and tragic manner? The fundamental reason is an economic and not a medical one. Some fortunate patients, who have a sedentary or light job in a healthy environment, do not relapse but lead a useful existence for many years. The majority of patients, however, return to a job which is not light, and to keep this job the man must prove his value in keen competition with healthy workers. In time he begins to feel the strain; the fear of failing in his work, with the consequent dire results to his wife and family, induces him to hide symptoms of relapse until he is beaten in the fight and has to give in.

Public Health Authorities, through their after-care organisations, endeavour to help the ex-sanatorium patient by ancillary nourishment for him and his family—by trying to find a light job for him, and by advice and assistance to the family in the home. These bodies, however, find it impossible to obtain specially protected jobs for the sick when there are not sufficient unprotected jobs for the healthy.

There is a danger, of course, that during his periods of deterioration at home, a patient may infect other members of his family.

This is the weak spot in our present campaign against the disease. Is it possible to provide an environment in which the ex-patient can work and justify his existence? Such an environment must allow the consumptive to have an occasional rest from two weeks to two months or more, if necessary, and yet provide a job for him on his return to working capacity.

Experiments on these lines have been carried out at Papworth, Preston Hall, and Barrowmore Hall settlements.

A tuberculosis settlement differs from a simple training colony in that it not only affords the patient an opportunity to learn a trade, but it also provides a permanent job for him at a living wage after his discharge from the sanatorium side of the organisation. The patient is also supplied with a cottage at low rental for himself and family. Single settlers are accommodated in a hostel, for which they pay out of their earnings in the Industrial Department.

The settlements mentioned above accept cases from many Local Authorities, who pay for the patients while under treatment in the sanatorium part of the organisation. When the patient is discharged to the settlement and permanently employed in the works, these payments cease.

The settlements were established and are administered by special committees and are dependent on the charitable public for funds.

The capacity for work of the ex-patients under settlement conditions is shewn in Table "A." This gives the particulars of ten men with well marked disease, taken from the Barrowmore Settlement of 30 men.

When the working conditions are good, the number of hours lost from sickness is small. The following Table "B," for four different years, shews the hours so lost. In some years the majority of time lost was due to the relapse of one or two men of the total number of workers.

The financial burden of a colony containing a sanatorium, industries department, and a settlement is, however, a heavy one. When trade is slack the settlers have to be paid their wages; they cannot be "played off." The settler at his best cannot turn out as much as a healthy man. Fresh cottage accommodation must be supplied for new settlers.

It is obvious, in these days of difficulty for manufacturers employing healthy labour, that a settlement is not going to make a profit when employing sick men.

A large settlement is more economic than a small one, because its industrial department can employ more men and the turnover should be greater in proportion to the overhead expenses. It is better, therefore, to develop and extend existing settlements than to endeavour to establish a number of smaller ones.

TABLE "A"—Earning Capacity.

Name.	Time Settled	Sputum		DISEASE (Moist Sounds)	Work.	Average Earnings per annum.	Break downs.	Total Sum earned.	WEIGHT On Settling	Now.
		Adm. to San.	Now						lbs.	lbs.
1. H. A.	2 yrs. 4 mths.	+	+	Both lungs. Peritoneum Shoulder.	Printer	£90—100	1	£225	139	124
2. F. A.	8 yrs. 9 mths.	+	{ + —	Both lungs.	Boot Repairs.	£124	—	£1078	108	101
3. S. D.	8 yrs. 11 mths.	+	—	Both lungs.	Upholstery.	£156	1	£1154	134	125
4. S. H.	2 yrs.	+	—	L. Lung.	Carpy.	£110	—	£221	127	133
5. F. H.	6 yrs. 3 mths.	+	—	Both lungs. Epididymis	Clerk.	£130	1	£812	128	138
6. E. G.	5 yrs. 3 mths.	+	+	Both lungs.	Upholstery.	£82	3	£373	125	121
7. J. N.	2 yrs. 9 mths.	+	+	Both lungs.	Carp. Stores.	£102	1	£253	162	156
8. C. T.	2 yrs. 5 mths.	+	—	Both lungs.	Carpy.	£136	—	£324	150	161
9. A. H.	6 yrs. 5 mths.	+	—	Both lungs.	Carpy.	£102	—	£653	150	157
10. T. F.	1 yr. 9 mths.	+	—	Both lungs.	Clerk.	£81	—	£167	135	135

Total 46 yrs. 10 mths.
Avgs. 4 yrs. 8 mths.

Total £5260

TABLE "B"

Working Hours and Absenteeism.

Year	No. of Men.	Total No. of possible hours work.	Total hours lost from Tuberculosis	Percentage of total possible hours.	Total hours lost from other illness.	Percentage of total possible hours.
1927-1928	21	43,383	1,121	2.5%	297	0.68%
1930-1931	25	43,204	622	1.4%	718	1.6%
1931-1932	28	50,917	771	1.5%	424	0.8%
1932-1933	27	49,501	1714	3.4%	867	1.7%

The settlement method is not applicable to every ex-patient who has not a suitable job to which to return. There are many factors that reduce the number of suitable men for settlement.

Many town dwellers are adverse to the removal of themselves and their families to an existence in the country, which, though providing a healthy environment, has fewer opportunities for amusement. Should the patient himself feel inclined to risk it, his wife may not be of the same opinion. Many sanatorium ex-patients will delude themselves that they can make good in the outside world, and only become convinced of their error when they are no longer fit enough to work, even in a settlement. Many patients take their discharge against medical advice from a sanatorium when quite unfit for work at all. There are many who are incapable of learning a new trade or, at any rate, fitting themselves to earn a living by it. Some are temperamentally unfit for settlement life, and would be a danger to the welfare of the settlement.

It is doubtful if any one Local Authority, unless the population under its care is very large, could find a sufficient number of suitable applicants to fill a large settlement.

A certain number of settlers will, in course of time, have a breakdown which may need treatment in the sanatorium part of the organisation for certain periods up to several months.

If the settler happens to have come from an area other than that in which the settlement is situated, the question arises as to who should be liable for the cost of treatment.

His former Local Authority may refuse liability because he no longer resides in their area, and the Local Authority in whose area the settlement is situated might refuse liability on the ground that they consider the man is an uninvited interloper. The relapsed settler may thus be deprived of help even from the authority to whom he pays rates for his settlement cottage. He, therefore, appeals to the committee who have established the settlement, and they have to accept this burden as well as having to subsidise his efforts when employed in the settlement.

The welfare of ex-sanatorium patients and the limitation of the spread of infection are of national as well as local importance; a parochial outlook on the part of Local Authorities towards tuberculosis settlements would not be helpful and would increase the difficulties of a devoted band of workers who are endeavouring to do something towards the solution of the after-care problem.

E.R.S.

Alopecia Areata.

I proceed in this way. I pour a small quantity of methylated chloroform into a large steel thimble and invert it over the patch, holding the thimble firmly against the scalp for a few minutes. This reddens the scalp and removes a lot of grease therefrom. Of course, if the patch is large it takes several thimblefuls to cover it. I allow the chloroform to evaporate for a moment or two, and then rub in forcibly, for several minutes, undiluted oil of cade. I may have deceived myself. It seems to work very successfully. I think that this idea is my own and I believe in it. I repeat the treatment about three times a week and generally get a fairly quick response.

R.T.T.

Lupus Vulgaris.

I grind up crystals of pot. permang. in a dry mortar and when I have pulverised them as far as possible I add a little water to make a rough paste. After cleaning up the patch with spirit I apply this paste thickly and allow it to dry. I then paint over the dry pot. permang. with 40 per cent. formaldehyde solution. There is a vigorous chemical reaction with the generation of heat. It seems to pick out the apple-jelly spots particularly. I may say it is momentarily very painful but the pain soon passes off. In treating any large patch I use a general anæsthetic. Local anæsthesia I have not had much success with, as in these cases it is difficult to inject under the patches satisfactorily and painting over the patch with cocaine I have not found to ease things much, if any.

I put no dressing on after the treatment. The dark discoloration soon passes off and I have had very good results indeed. I think it is a valuable method and, as far as I know, it is original. I repeat the dose as and when required.

R.T.T.

Luke's Method for Carbuncles.

In the middle of last century Mr. Luke, a surgeon of the London Hospital, used to paint a ring of collodion around the crater of a carbuncle. He mixed Collodion and Collodion Flexile in approximately equal parts. The former shrinks and the latter adheres, and together they squeeze the inflamed skin. The squeeze is enough sometimes to bring out a little pus or serum. This phenomenon, seen for the first time, appears to explain the rationale of the method. But there is more in it than the mere expression of pus, more even than that outward flow of tissue fluids, the value of which Wright has taught. It seems to me that Mr. Luke applied to the skin the "damming" process introduced by Hugh Owen Thomas in 1876 for ununited fractures, and advocated twenty-seven years later by Bier both for fractures and for carbuncles. For the latter Bier used his well-known cups exhausted by rubber balls.

Bier's cups are inferior to Luke's collodion. That gently and continuously maintains a concentration of tissue fluids and therewith of the forces of resistance and repair.

The serum or pus in the crater sometimes becomes thick and fibrinous. In that case it is useful to pack some citrate of soda in it. Next day the discharge will be much more fluid.

The ring of collodion should be as broad as the part will allow. The centre, ordinarily the size of a shilling, leaves the crater free to discharge. No collodion must touch it.

A hairy part must be shaved; and the method is unsuitable for a concave site such as the axilla; but it has wide uses and often cures quickly and painlessly without other aid. Complaint of the stiffness of the collodion can be met by covering the bare crater with Epsom salts and glycerine paste. The cure by this combination of remedies is speedier and happier than by either alone.

A stab wound is seldom necessary and the crucial incision never. The core when loose can be lifted out with forceps.

L.J.P.

Ichthyosis, an Atavism.

Ever since the Greeks adopted a snake as the symbol of Aesculapias the science of zoology has been intertwined with that of medicine. The writer claims that the "disease" known as ichthyosis is a reversion to an earlier stage of evolution, a throwback to ancestral type.

Now man normally exhibits in his anatomy some 180 vestigial structures—reminders of his ascent from the primeval abyss. Thus the frontal and parietal bones of the foetus, laid down in membrane, are derived from scales on the head of a fish ancestor; this can be demonstrated in the common goldfish, whose dermal plates lose their superficial enamel to become the outer bones of the skull. In the brain the pineal body is the remnant of a central eye, still functional in certain lizards. Darwin's point—a projection on the pinna—was once (phylogenetically) the tip of the ear; the pinna itself retains feeble intrinsic muscles once used for folding and unfolding the ear, and still used by certain lemurs. Each of us has a larynx dimpled by the ventricles of Morgagni—"the last remnants of a howling organ." The diphyodont dentition of man with incisors, canines, premolars and molars all complete, is but a complex modification of the primeval placoid scales lining the mouths of sharks.

Hypospadias and epispadias are but relics of reptilian conditions in which the spermatic groove has failed to coalesce into a tube; supernumerary mammae recall the multiple lactation of rodents and insectivores. The bicornuate uterus so rare in man is normal in some hoofed mammals, and the rare genal papilla mimics the sensitive nodules which nourish the vibrissae of dogs and cats. Bold speculators have ranked polydacty as a true reversion, counting the six- or seven-fingered hand as a throwback to days when man's fish ancestors bore fins stiffened with multiple bony rays.

Although known to medical science since the days of Avicenna, ichthyosis is pre-eminently the riddle of dermatology. In this "disease" the epiderm is thickened with a deposit of keratin throughout the uppermost layers of epithelial cells. The extent of the thickening varies; it may only amount to a harshness of the skin such as Kaposi claims to occur on the outside of the thigh in every male subject. Ichthyosis mainly affects extensor surfaces, especially the elbows and knees; on the trunk it occurs as quadrilateral plate-like scales. Well developed scales are greyish, greenish or brownish, due to the presence of keratin (N. Walker) and not to dirt as erroneously supposed; they recall in fact the keratin tints seen in the scales of reptiles and the feet and legs of birds. The remarkable scaly appearance of the patient, the deficiency of sweat and sebum, the congenital nature and hereditary transmission of the affection, and the associated brittleness of nails and hair mark out ichthyosis sharply from all other skin lesions.

Formerly supposed by the followers of Unna to be an inflammation of the skin, an ''infectious hyperkeratosis,'' ichthyosis has been ranked by Dumesnil and Bowen as due to persistence of the epitrichium. This epitrichium is the primitive ectoderm of the embryo and divides into two layers of cells, the lower one becoming the epidermis. The upper layer or epitrichium proper forms a mechanical waterproof sheet round the embryo, which thus escapes maceration in the liquor amnii; at birth in the human subject it has broken down, mingling with sebum to form the vernix caseosa. The growth of the foetal hair or lanugo also assists the destruction of the epitrichium by pushing it up from beneath. Thus if for any reason the hair and sebum are deficient—a frequent condition in ichthyosis—persistence of the epitrichium is more than encouraged.

But what hinders the due formation of these tissues? Why is hair and sebum deficient in ichthyosis? The writer claims that these cases are definite throwbacks in the ancestry of man, that the strange scaly skin is really fish or reptilian, that it is as atavistic as a six-fingered hand or a bicornuate uterus. The sage who wrote on ''ichthyosis sauroderma'' (lizard skin) spoke better than he knew.

Thus if one examines the integument of a toad or lizard one finds a zoological ichthyosis as a normal condition. Here are warts and spines limited to extensor surfaces, avoiding contact regions such as axilla and groin. There is no subcutaneous fat. The skin is grey or green or brown with keratin pigment. There is no hair. Even the occasional moulting of excrescences seen in ichthyosis hystrix is paralleled by the periodical casting of spines among such amphibians as the Surinam toad. In these creatures the layer superficial to the corneous layer of the skin is shed at intervals and from its position can only be epitrichium. The "polygonal cells with flattened nuclei" faithfully recall this membrane in the human foetus.

In conclusion, among higher animals it is quite usual for the epitrichium to persist. Thus in the peccary hog and probably in the horse also this membrane endures till birth; in cats, bears and some rodents there is only a partial shedding. There is even occasional scale persistence in mammals not usually atavistic; thus Toldt has recorded a scaly fox, and a calf with foetal ichthyosis has been described by Leibreich. It is thus entirely reasonable to claim ichthyosis, not as a disease but as an atavistic condition in man.

G.R.

About Conjunctivitis.

The ordinary acute catarrhal conjunctivitis so often met with in practice is a disease which is usually amenable to treatment; but in certain of such cases complications ensue which, if not recognised at once, may cause damage more or less seriously and permanently to the vision; and it is to the recognition and treatment of such complications that this paper is mainly directed. I will first of all describe the simple and uncomplicated case and its treatment.

Patient's symptoms: A burning feeling in the eyes and as if they were full of grit or sand. The eyelids are stated to be "stuck together" in the morning.

Observed signs: general conjunctival redness, some photophobia but not intolerable, more or less muco-purulent discharge which dries at night causing the lids to "stick together" in the mornings, the cornea clear and pupil active.

Such cases usually clear up in a few days under:—

1. Warm boracic lotion irrigation with an undine three times daily or four hourly, according to severity.

2. The use of Argyrol drops 20%, put in after the lotion.

3. The application of a simple boric ointment or of one composed of equal parts of lanoline and vaseline to the lid edges at night. This will prevent the lids sticking together and so comfort the patient.

The complications of conjunctivitis summed up simply are "ulceration of the cornea and the sequelae."

Recognition of corneal ulceration:—

1. In the ordinary way the symptoms of conjunctivitis detailed above are those of discomfort and not of pain, whereas the onset of ulceration is invariably preceded or accompanied by pain in the eye and around it.

2. While in uncomplicated conjunctivitis there is some photophobia, as soon as ulceration occurs the photophobia becomes marked so that examination of the eye is difficult.

3. The final recognition of corneal ulceration is the "seeing" of the ulcer, and this is accomplished by putting into the eye a drop of a fluorescein solution, which is made up as follows:—

Sodii Bicarb.	gr. xii.
Fluorescein	gr. viii.
Aq. Dest.	fl. oz. i.

Follow this in a few seconds by a drop of 4% cocain hydrochloride and after a wait of about thirty seconds the eye will open and the surface of the ulcer will be seen stained bright green, so that its extent and depth can be determined.

Treatment of corneal ulceration, when diagnosed, consists in the more rigorous application of the measures above described, and, in addition, the use of a mydriatic or miotic. The former is generally preferred. Atropin sulphate drops, ½%, are instilled three times daily. This widens the pupil, prevents the formation of iris adhesions and puts the eye at rest, acting like a splint on a fracture by putting the ciliary muscle out of action.

In certain cases, and especially where the ulcer is near the cornea-scleral margin and is deep, threatening a perforation, the use of a miotic is advisable, and pilocarpin nitrate drops, 1%, used three or four times daily, will contract the pupil and, if perforation of the ulcer occur, only a small piece of iris will prolapse.

I have not touched in this article on the use of silver nitrate, which is of great value in acute cases with profuse discharge. This drug, to my mind, should not be used as drops, but should be painted on the conjunctiva as follows:—

The lids having been everted, a solution of silver nitrate, 2½%, is gently painted, by wool rolled round a thin glass rod, over the inflamed and swollen conjunctival surface so exposed. The nitrate changes to chloride as shewn by a white film; and when this is seen the excess of nitrate should be swabbed gently away with the rod and wool soaked in ordinary tap water. The lids can then be allowed to return to the normal position. This procedure, done once daily, is most efficacious; but is painful. The pain is mitigated but not fully prevented by the instillation of cocaine beforehand. The method should therefore be reserved for severe cases.

OPHTHALMIA NEONATORUM.

Mild cases of this disease can be treated as above described, and if there is not much oedema of the lids, so that the eye can be inspected easily, all will probably go well. But should the case not respond at once I am certain that hospital treatment is immediately indicated. No doctor in a busy general practice can spare the time required, and in addition skilled nursing is an absolute essential. The risk of permanent blindness is so great in a bad case that, for his own mental peace, the doctor should pass the case on to an ophthalmic surgeon who is the person most likely to command the nursing which alone will bring about a favourable result.

I have described only the ordinary and outstanding forms of treatment. The drugs and methods are simple and have stood the test of time and will be found satisfactory if diligently and carefully applied.

T.M.B.

Iritis and Glaucoma.

Of the many diseases of the eye liable to influence the vision and comfort of the patient, iritis and glaucoma occupy a prominent position.

In this paper an attempt has been made to assist in their diagnosis and briefly to outline the most suitable treatment.

Before going into the question of these diseases it is necessary to devote a little space to the anatomy and physiology of the iris and ciliary body.

The iris and ciliary body are richly supplied with blood vessels from a deeper arterial plexus around the ciliary region and we know that a large part of the intraocular fluid passes by way of the ciliary body into the eye. In the higher mammals, particularly in man, the principal lymph flow is in a forward direction through the suspensory ligament of the lens into the posterior chamber, which lies in front of this suspensory ligament and the back of the iris, then through the pupil into the anterior chamber and out through the spaces of Fontana and canal of Schlemm. A small amount of the intraocular lymph flow takes the posterior route towards the vortex veins and the optic nerve. It will be readily understood that an increase of fluid passing into the eye from the ciliary body will lead to increase of tension of the eye, and anything which will prevent the exit of fluids from the eye (e.g., shallow anterior chamber) will also tend to cause increase of intra-ocular pressure. It is essential to keep this question of rich vascularity and normal direction of lymph flow well in mind when discussing iritis and glaucoma.

In any inflammation one of the earliest changes to occur is hyperaemia, and if the iris has to accommodate itself to engorement of its blood vessels the only way this can be done is by the pupil becoming small. This narrowing of the pupil is also aided by spasm in the sphincter muscle as a direct result of the inflammation. Furthermore, in inflammations we get exudations in the inflamed area and as a consequence of this the iris will tend to stick to anything with which it is in contact. The iris has fluid in front and behind it and only comes into contact with the anterior capsule of the lense at the pupil edge. As a result of this there is a tendency for the pupil to stick in this situation and so to form synechiae posterior. This glueing down may only be in parts of the pupil edge and so an irregularly shaped pupil is formed, but the normal lymph flow is not disturbed. Sometimes the adhesion between the pupil edge is completely annular (seclusion of the pupil). As a consequence the lymph flow is interfered with and a bulging forward of the iris occurs and Iris Bombe is produced. As a result of this there is an increase of intraocular tension and we get a secondary glaucoma to this Iris Bombe. In some cases the pupil area itself is completely filled by exudate (occlusion of the pupil).

THE STUDY OF A CASE OF ACUTE IRITIS.

The patient will complain of severe pain in the eye and also there will be referred pain along other branches of the ophthalmic division of the fifth nerve, that is, not only eye pain but frontal and temporal pain as well. In addition to the pain there will be blurring of sight produced by the exudations into the anterior chamber, pupil area and post lental vitreous. There is marked photophobia and lachrymation. Such are the symptoms and now for the signs. The lids are usually a little puffy. On opening the eye there may be a gush of fluid because of the excessive lachrymation and then will be found injection of the eyeball. This injection is most marked in the pericorneal zone and tends to fade away as the conjunctiva is followed towards the lids. The injection is superficial (conjunctival) and deep pericorneal in the form of a deeper purple blush. In uncomplicated cases the cornea is clear, and the anterior chamber normal in depth. The iris will be discoloured as compared with the other eye and its surface muddy; in fact, its pattern, usually so clear, becomes blurred. The pupil is small and irregular and in uncomplicated cases the tension is normal. Therefore the symptoms are:—

(1) Pain.
(2) Blurring of sight.
(3) Photophobia.
(4) Lachrymation.

and the signs are:—

(1) Marked pericorneal injection.
(2) Clear cornea.
(3) Good anterior chamber.
(4) Iris muddy and discoloured.
(5) Pupil small and irregular.
(6) Tension normal.

What occurs if a case of this kind remains untreated? In a slight case, on subsidence of the inflammation, there may be one or two adhesions at the pupil edge, but otherwise the eye is quite normal. The adhesions may be more numerous and, if complete, Iris Bombe results, or the pupil area may be filled in by exudations. The inflammation may be very severe and result in shrinking of the vitreous, detachment of the retina and atrophy of the eye.

The causes of Iritis are most important and a general investigation is necessary in every case. Iritis may be caused by trauma, such as wounds involving the iris, or following upon operations, e.g., an iridectomy, but the majority of the cases of Iritis arise from general disturbances. The following are examples :—

(1) Syphilis. This may be the result of congenital syphilis, or may be of the acquired form either in the late secondary stage when it is accompanied by a fading skin rash, alopecia and snail track ulcers on the soft palate. We may see it in the tertiary stage where we should find small raised yellowish nodules usually at the pupil edge.

(2) Tubercle. In tuberculous iritis all the signs of iritis are found and yellowish nodules may be seen in the iris at its ciliary border, that is, in the angle of filtration.

(3) Nasal sinus disease.

(4) Gonococcal. This accounts for many cases of recurring iritis and may be present soon after the original attack of urethritis, or come on at intervals during the gleety stage.

(5) Gastro-intestinal disturbances. This includes a multitude of causes. Pyorrhoea, unerupted teeth, septic tonsils, mucous colitis, etc.

(6) Genito-urinary disturbances, such as endometritis, urethritis, etc.

(7) Then there are those cases the result of joint diseases which used to produce the condition known as rheumatic iritis. The association of iritis with acute rheumatic fever is exceedingly uncommon, if it ever occurs. We do meet with iritis in the chronic joint troubles, such as osteo-arthritis.

(8) Sympathetic disease.

(10) Infection disease. Meningitis, Typhus and Typhoid Puerperal Fever, Pyaemia.

(11) Diabetes.

When the ciliary body takes part in the inflammation forming iridocyclitis we have all the abovementioned symptoms and signs of iritis together with two important additions :—(1) tenderness on pressure of the eyeball, and more significant still (2) small deposits on the back of the cornea. These deposits are the result of exudations from the ciliary body being caught in the lymph stream and carried forward into the anterior chamber where some of them stick on the back of the cornea like little grains of sand, or sometimes the deposits are larger still and look like little balls of mutton fat. These deposits are keratic precipitates (K.P.) The causes are the same as in iritis.

The prognosis in iritis will depend on how early we can get to work with the treatment (local and general) and whether we are successful in getting the pupil wide and breaking down the adhesions. If the pupil is completely sealed around its pupil margin there is a great danger of the eye being lost from increase of tension. Locally, the treatment should consist of the use of Atropine in 1 per cent. solution in order to get the pupil wide and keep it wide. It is impossible to say how frequently the drops should be used but it is necessary to get the maximum effect of dilatation with the minimal number of drops. The action of the drops can be greatly aided by the application of hot fomentation to the eye.

A bandage must be worn and it is necessary for the conjunctival sac to be washed out twice daily with a simple Boracic lotion. Dionin (an ethylchloride of morphine) is useful in cases of iritis, also blisters to the temple. Dionin acts by producing chemosis which increases the lymph flow and also helps the absorption of exudates. All the time Atropine is being used the tension must be watched.

The general treatment is most important and I cannot too strongly stress this point. There has always been a tendency for iritis to receive only local treatment and the general treatment to be ignored, excepting medicines of a sedative type.

It will be noted that iritis is a disease of sudden onset with much pain and the eye very injected. Its treatment locally circles round the use of Atropine. Another disease which is very like it with a sudden onset and severe pain is acute congestive glaucoma. If this condition is diagnosed as iritis and treated with Atropine, blindness will result. Because of this important fact and the necessity for a definite diagnosis to be made it will be useful now to describe the condition of acute congestive glaucoma and later note certain points which will help to differentiate between the two.

In acute congestive glaucoma the tension of the eyeball, which is in normal circumstances about 24 mm. of Mercury, becomes greatly increased to 50 or 60 mm., or even more. The eyeball is so constructed that its contents, i.e., the sensory nerves, nerve of sight, blood vessels, lymph channels, etc., can tolerate normal pressure, but if there is increase of tension these structures will become affected.

Primary glaucoma may be either :—

(1) Acute congestive glaucoma, or
(2) Chronic simple glaucoma.

It is the likeness of acute congestive glaucoma to iritis which makes the different diagnosis so important. In acute congestive glaucoma there is sudden onset, acute pain and great deterioration of vision. When looking for the signs it is frequently found that there is marked oedema of the lids and intense injection of the whole of the eyeball. The cornea is hazy (steamy), the anterior chamber very shallow, the pupil wide and the tension of the eyeball greatly increased. The sudden increase of tension has produced paralysis of the sphincter muscle of the pupil. It has caused lymph stasis of the cornea ; in fact, the whole eye is lymph blocked and that is the reason why the sight is so seriously affected. Sometimes the shock produces attacks of vomiting. It is now possible to compare a case of iritis with one of acute congestive glaucoma.

The onset is sudden in both cases, pain is marked in both cases but more marked in glaucoma than in iritis. The vision in both is affected. The age of the patient is of some use in assisting, for iritis may occur at any age, whereas acute congestive glaucoma is more likely to occur in elderly people. An examination will show that the lids do not give much help. The injection of the eyeball is marked in both cases but on examining the cornea it will be found that in iritis it is clear and in glaucoma very hazy. The anterior chamber in iritis is of good depth but very shallow in glaucoma. The pupil in untreated iritis is small and irregular, whereas the pupil in congestive glaucoma is wide. The tension of the eyeball in iritis is normal but the tension in acute congestive glaucoma is very much increased.

In acute congestive glaucoma Eserine (0.5%) should be instilled immediately and if the case is seen in the first twenty-four hours of the attack the Eserine drops should be continued every hour. Morphine, too, should be given to relieve the pain and to help the Eserine to contract the pupil. An ample saline purgative is necessary at the onset as the loss of water may help to reduce the tension. Intravenous injections of 50 cc. of a 30% Sodium Chloride solution have proved useful. If in a few hours the tension is not reduced to the normal an operation will be necessary. The operation for acute glaucoma, if satisfactorily carried out, and early enough, gives very pleasing results. Frequently eyes with the vision as poor as the counting of fingers only, get a return to normal vision. The operation consists in an iridectomy, and should be done under a general anæsthetic.

Chronic simple glaucoma is a slow, insidious and very treacherous disease. There are no inflammatory signs at all. The patient will complain of occasional blurring of the vision, pain in and around the eye and also "rings" or "rainbows" when looking at a light. All these attacks are short in duration and occur to begin with at fairly long intervals, but with time the intervals become shorter and the attacks last longer until chronicity has arrived. The eye tension is increased and all the signs and symptoms can be explained from this. As it has been previously stated, the constituents of the eyeball are so constructed as to stand normal pressure but if this intraocular pressure is increased there will be pain from pressure on the sensory nerves and referred pain round other branches of the ophthalmic division. There will be occasional lymph stasis in the cornea and so the patient, looking through this, will get the same effect as when looking out through a window on a wet night at the street lamp, that is "rainbows" round lights. The nerve of sight becomes involved and the optic nerve is pathologically cupped. There is contraction of the nasal field of vision and later on the temporal field is affected. The fields of vision get narrower and narower until they become telescopic and ultimately disappear altogether and blindness results. With this contraction of the field of vision there is atrophy of the optic nerve and with time the blind spot enlarges.

It is important to keep chronic glaucoma in mind when dealing with elderly people and the question of putting drops into the eye (e.g., to dilate the pupils) is contemplated. It is well in cases for fundus examination, etc., where a Mydriatic is desired that everything should be done to exclude the possibility of the patient being of the glaucomatous type. Some elderly people suffering from influenza will complain of inflamed eyes and it is frequently noted that there is some haziness of the iris which would suggest the possibility of early iritis. It is important to make quite sure that this is not one of the subacute attacks of glaucoma before introducing any Atropine.

In chronic simple glaucoma urgency of operation is not the rule. Gutt. Eserine or Gutt. Pilocarpine should be used and it will be necessary to watch the behaviour of the drops on the following points :—

(1) Is the tension of the eye kept normal by the use of the drops?

(2) Has any deterioration in the vision been stopped?

(3) Does the field of vision remain stationary?

If the drops treatment does this then there is no need to contemplate operation, but if, despite the drops, the vision shows signs of diminution, the field of vision contracts and the blind spot increases, then operation must be considered.

The operation in chronic glaucoma used to be an iridectomy as in the acute form, but in this country the trephine operation with peripheral iridectomy is usually adopted and if a good cystoid cicatrix is obtained the tension becomes and keeps normal.

The final results after a trephine operation are usually very satisfactory but it must be remembered one is not justified in operating in chronic simple glaucoma until we have tried Eserine or Pilocarpine drops and proved they have failed to hold up the disease.

J.W.

Familial Chronic Glaucoma.

The subject of Glaucoma is of interest on this occasion in that:—

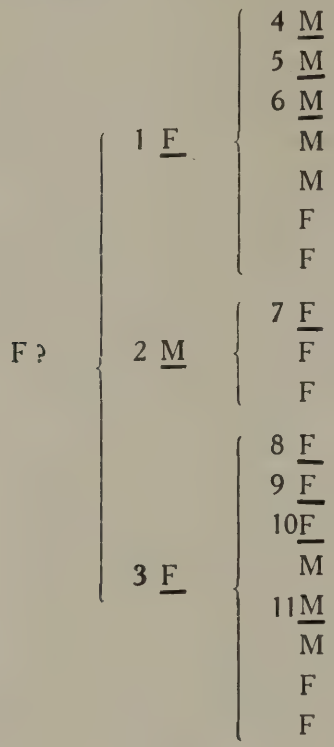
(1) In this country it was a native of Cheshire, Sir William Bowman,* born at Nantwich, who in 1862 advocated strongly the adoption of Von Graefe's treatment by iridectomy. Bowman also devised the graduated digital method of estimating the ocular tension. This first form of tonometry was to hold sway in the diagnosis of glaucoma for close on half a century. Its notation appeared in the British Medical Journal of October 11, 1862: T3, T2, T1, T1 ?, Tn, —T1?, —T1, —T2, —T3.

(2) It was at the time of Sir William Hodgson's commencing practice that miotics were first used in the treatment of glaucoma; physostigmine by Laqueur of Strasburg, and then pilocarpine by Adolf Weber.

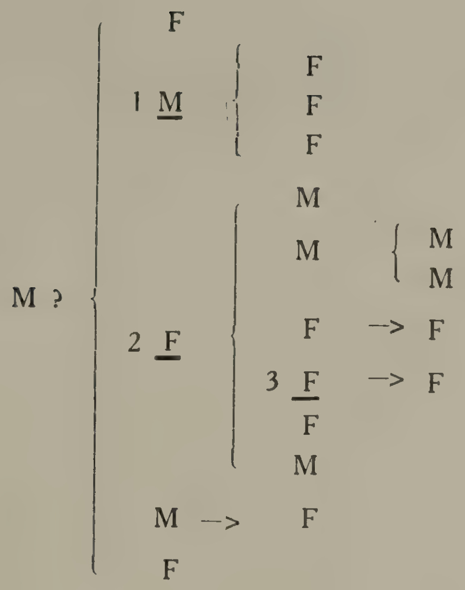
---

* *Bowman's record shows a wide range of work: entered King's College Hospital,* 1838; *Joint Prof. of Physiology there* 1848—55; *Surgeon there* 1856—62, *after which he devoted himself to Ophthalmic Surgery. He was a pioneer in the training of nurses. On the death of Sir Wm. Ferguson, it was probably he who was the "some one" of whom the Lancet speaks who "officiously undertook to invite Mr. Lister to occupy the vacant chair of Clinical Surgery." Though his action was thus criticised, it resulted in bringing Lister to London.*

Since 1842 instances of familial glaucoma have been reported. The pedigrees reported here are those of two families from a Cheshire town. In the one instance there are eleven cases of chronic glaucoma in two generations: in the other there are three cases in two generations. In each family one of the parents in the preceding generation is known to have been blind, with no direct evidence as to the cause of blindness. The cause was probably glaucoma, but these two members are not included as cases of glaucoma.



First family. Eleven cases in two generations.



Second family. Three cases in two generations.

These are four typical clinical records:—

1.—First family, Case 1. Juliana R., aged 67 years.

Vision, Right eye: 6/9 J1. Left eye: Hand movements; divergent strabismus.

Field, Right eye: much contracted on the nasal side. Left eye: very small eccentric field.

Age at discovery, 23 years. Mistiness of sight.

Operation, Iridectomy both eyes at time of discovery. Globes not small. Discs cupped and atrophic.

Tension: Right eye T1. Left eye T3.

2.—First family, Case 4. Tom R., age 48 years.

Vision, Right eye: Fingers at ½ metre; divergent strabismus. Left eye: 6/36 J6.

Field, Right eye: Small field, temporal only. Left eye: Restricted above and on the nasal side.

Age at discovery: 14 years. Mistiness of sight.

Operation: Iridectomy both eyes at 17 years of age. Globes and corneæ not small. Discs cupped and atrophic.

Tension: Right eye T1. Left eye T1 ?

3.—Second family, Case 2. Frances A., age 72 years.

Vision, Right eye: No perception of light. Left eye: Fingers at ½ metre.

Field, Left eye: Fair temporal field, no nasal field.

Age at discovery: 26 years, during pregnancy. Mistiness of sight.

Operation: Iridectomy both eyes at 27 years of age. Globes not small. Right lens opaque and eye shrinking. Left disc cupped and atrophic T2.

4.—Second family, Case 3. Mona, F., aged 42 years.

Vision, Right eye: 6/36 J 12. Left eye: No perception of light.

Field, Right eye: Very constricted eccentric.

Age at discovery: 31 years. Haloes seen round lights and loss of field noticed.

Operation: Trephining both eyes after discovery. Globes and corneæ not small. Discs cupped and atrophic.

Tension, Right eye: T1 ? Left eye: T2.

Priestley Smith considered that in his cases a cause of the condition was the small size of the globe or of the cornea.

Lawford found that "anticipation" was a prominent feature in familial cases, succeeding generations being affected at an earlier age. He found that the male sex showed a slightly greater liability to inheritance.

Some of the examples of familial chronic glaucoma previously published are:—Eight cases in a family reported by Howe; five cases in a family reported by Lawford; three cases in three generations reported by Nettleship; seven cases in three generations reported by Zorab.

The series reported here consists of two families, one with eleven cases and the other with three cases.

Conclusions from examination of the present series:—

(1) Glaucoma at an early age, or in two members of a family, should ensure that the eyes of other members of the family are examined and observed.

(2) The seeing of haloes round a light was the first symptom noticed by several of the patients.

(3) A small globe or small cornea is not the only cause of familial glaucoma.

(4) Familial chronic glaucoma was not found to be associated with any general disease.

(5) The present series confirms the view that transmission may take place equally by either sex.

(6) These cases do not support the view that males show greater liability to inheritance.

G.A.

Howe, L., Archives of Ophthalmology, New York, 1887, xvi, 72.

Smith, Priestley, "Ophthalmic Review," London, 1894, xiii, 215.

Lawford, J. B., Royal London Ophthalmic Hospital Reports, 1908, xvii, 57.

Calhoun, P. Jour. Amer. Med. Assoc., 1914, LXiii, 209.

Zorab A., Trans. Ophth. Soc. U.K., 1932, Lii, 446.

Modern Conceptions in the Treatment of Retinal Detachment.

INTRODUCTION.

Since the publication in 1928 by Professor Gonin of the treatment of spontaneous retinal detachment by igni-puncture, no subject in ophthalmology has received more widespread attention. Before discussing the modern methods of treatment of the condition, a short account of the anatomy of the retina and the pathogenesis of the separation is necessary.

The posterior portion of the primary optic vesicle is divided into two layers: the outer ultimately constitutes the pigment epithelium and becomes firmly blended with the choroid, and from the inner develops the complicated structure known as the pars optica retinae. Between the two layers there remains a potential space, and it is in this space that fluid accumulates under certain pathological conditions. The inner layer constitutes what is clinically termed the retina. Normally it is firmly attached in two places: posteriorally around the optic disc and peripherally at its most forward extension, the ora serrata. It is only loosely adherent to the pigment epithelium.

By detachment of the retina is meant a separation of the retina from its loose attachments to the pigment epithelium, with or without a tearing away of a portion of the insertion at the ora serrata. Such separation can be produced by pressure from behind, such as massive exudates or new growths. In these cases the cause is obvious but the majority of cases are unassociated with such conditions and the retina is ballooned forwards into the vitreous and separated from the pigment epithelium by a collection of fluid in the inter-retinal space.

It is certain that no one single theory is sufficient to account for all cases of spontaneous retinal detachment. The following points require consideration:—

(1) For many years myopia was held to be the underlying cause of the majority of cases. The view held was that stretching of the globe anteroposteriorally, as the myopia increased, was sufficient to cause a separation of retina from choroid. In myopia, the capacity of the eye increases and, according to Duke-Elder, no increase occurs in the amount of normal vitreous, so fluid fills up the

remaining space. In addition, the stretching of the coats causes a breakdown in the normal nutritional relations between the pigment epithelium and the retina. Thus the vitreous becomes partially degenerate and the retina partially atrophic and therefore the eye is more susceptible to toxic influences, hæmorrhage or trauma and cystic degeneration of the retina is also more likely to occur under such conditions.

(2) TRAUMA. It is generally agreed that violent distension is likely to cause retinal detachment. The least supported area of the retina is up and in, and frequently traumatic retinal tears are found here. Retinal rupture can also occur by contre-coup, in which case the rupture will be opposite the site of impact. The term "disinsertion" of the retina is applied in that condition in which the retina is torn away from its insertion at the ora serrata. Finally, the retina in the region of the macula is the most delicate, and for this reason traumatic retinal tears may occur in this position. Thus, in all cases of retinal detachment, a history of trauma is very important. In two cases recently under my care, both emmetropic, one gave a history of a blow with a hockey ball three years previously, and the second a history of a fall downstairs with bruising of the forehead two and a half years previously. In both, no symptoms had arisen till within a few weeks of consulting me, and both showed extensive retinal disinsertions with shallow detachments.

(3) TRACTION BY VITREOUS BANDS. Leber postulated the theory of a pre-retinitis, i.e., an area of inflammation between retina and vitreous. The result of this was the formation of bands in the vitreous which, as they contracted, tore the retina off its bed and in some cases caused tears in the retina itself. Gonin has modified this theory and believes that the essential feature is an equatorial choroiditis as the result of which changes occur in the ciliary body with subsequent proliferation of cells between vitreous and retina.

(4) Any secretion into the inter-retinal space would, for anatomical reasons already discussed, cause retinal detachment. An exudative choroiditis or a transudate from the choroid is worthy of consideration as a causative agent in some cases. The question of capillary pressure is important. "If the inter-retinal capillary pressure rises above the pre-retinal capillary pressure, there is an exit of protein from the choroidal vessels, causing a detachment and finally the retina will become torn."—(J. R. Anderson).

TEARS AND DISINSERTIONS.

Mention has already been made of the occurrence of ruptures and tears in the retina. These appear in various forms: some are horse-shoe shaped with the concavity towards the ora; others are irregular, and those at the macula are almost invariably punched out. Disinsertions have also been referred to. The large holes are usually easily seen—provided that the eye is examined after full dilatation of the pupil. Hours can be spent searching for the smaller ones: they are frequently hidden behind a gross ballooning of a detached retina; often they occur in association with fine retinal hæmorrhages. The majority of tears are situated peripherally. Broadly speaking, their occurrence can be summarised as being the result of trauma, myopia with degenerative changes associated with toxic influences or hæmorrhage, choroiditis, or tearing as the result of contracting vitreous bands. The frequency of tears is still a debatable point. There is no doubt that in the past sufficient attention has not been given to this aspect of the problem. Many holes are very difficult to find—especially those lying far forward on the retina. In the majority of cases with the history of an abrupt onset, tears can be found. Gonin considers that they are present in almost every case of this nature.

OLDER METHODS OF TREATMENT.

The condition was described as far back as 1805, but it was only after the discovery of the ophthalmoscope by Helmholtz that accurate descriptions appear (von Graefe, 1854). The literature abounds with accounts of various forms of treatment, none of which produced more than a very small percentage of cures. The methods most favoured were:—

(1) Puncture of the sclera by cautery:

The puncture was placed at that point where the detachment was most prominent, and the sub-retinal fluid evacuated. The retina fell back into position and adhesions formed at the site of the cautery puncture.

(2) Puncture of the sclera by knife:

The section was carried through the retina in order to establish drainage of the sub-retinal fluid into the vitreous chamber. This was sometimes combined with retinal cauterisation.

(3) Subconjunctival injections:

Hypertonic saline, Mercury oxy-cyanide and magnesium sulphate were usually favoured. They were employed in an effort to induce absorption of the subretinal fluid by osmosis.

(4) Rest and diaphoresis:

An extreme case is described by Vogt. The patient, a myope aged 65, developed a detachment in his only good eye, the other eye being blind from a similar cause. He was treated for fifteen months by rest, bandaging and saline injections without improvement. Rest was continued for another twelve months, when the condition was cured. Five years later the vision in the eye was normal. The result was a triumph of perseverance, but it seems doubtful whether many patients could stand such a strain.

It is important to note that in all these operative procedures the greatest attention was paid to the point of maximum detachment: though the tears were seen and described, their true significance was not appreciated.

MODERN METHODS OF TREATMENT.

Gonin's Method: To Gonin must be given the greatest credit in the elucidation of this most difficult problem, for, though many authorities do not accept completely either his theories or methods of treatment, there is no doubt that his work has greatly stimulated the interest of all ophthalmologists in this subject. Briefly, Gonin's view is that spontaneous retinal detachment is the result of a tearing of the retina by vitreous strands and that these strands are as a rule the indirect result of a previous equatorial choroiditis and that as soon as the tear occurs the fluid which is present in the vitreous chamber in addition to normal vitreous passes through the tear and fills up the inter-retinal space. In his view, the tear of the retina is the essential feature of the condition, and this tear occurs either in a previously unhealthy eye or as the result of trauma. He differs fundamentally from those (amongst whom are Lister[3] and Larsson[4]) who regard the tears as being of only secondary importance.

His treatment consists of closure of the hole in the retina by cautery puncture through the sclera. He estimates the distance of the tear from the ora serrata in disc diameters (disc diameter=1½ mm.) and, as we already know the distance from the corneo-scleral margin to the ora serrata, the sum of these two figures gives the distance of the tear from the limbus. He then estimates the meridian in which the tear is situated and marks this on the corneo-scleral margin. A dissection of the conjunctiva and episcleral tissue is carried out and a red hot cautery is pierced through the sclera at the estimated point. The inter-retinal fluid escapes and the hole is sealed off by the subsequent fibrosis that occurs. There are certain technical difficulties. However much care is taken, it is extremely easy to miss the tear completely or only partially to hit it. There may be several tears, in which case several operations are necessary. Gross hæmorrhage into the globe has occurred. The result of the cauterisation may be too much scarring, which, when it starts to contract, may rip the retina off its bed. In the one immediately successful case treated by myself by this method, this actually occurred three and a half months later. In the hands of Gonin himself he shows a recovery rate of 53% of cases operated upon, but this does not include those cases examined and rejected as not suitable for operation. Figures given by other authorities vary between 8 per cent. and 40 per cent.

Guist's Method: Because of the difficulties already enumerated and because of Gonin's method constitutes a violent local assault on the eye—sclera, choroid, sub-retinal fluid, retina and vitreous are disturbed—Guist devised the method of multiple scleral trephining. "The method depends upon the exposure of the choroid in a series of trephines over the site of the hole if present, and the treatment of the exposed choroid by caustic potash which is immediately neutralised by acetic acid. In this way a localised chemical choroiditis is produced, which causes an adhesion of the retina to the choroid and obliteration of the hole."—(G. W. Black).[5] The trephines are placed round the tear, and it is "barraged" off from the surrounding retina. Obviously it is more applicable to a long tear such as a disinsertion. In a preliminary survey only from Moorfields, 40 per cent. of cases that were treated by this method were claimed as cures.

Larssons' method[4]: In 1932 Larsson reported his method of endothermy. He is not convinced that closure of the hole per se is the essential at which to aim. He thinks that the fixation of a larger area of retina to the choroid is necessary, but that this area should be the one in which the tear is situated. He very wisely points out that though Gonin asserts that if the hole is closed re-attachment takes place, the converse may be true, and that when re-attachment takes place, the hole may heal. He thinks, moreover, that as so many cases of detachment occur in eyes showing areas of cystic retinal degeneration it is wiser to attempt to deal with a larger area of retina. After dissection down to the sclera over that area where the tear is present (which may necessitate tenotomy of one of the extrinsic ocular muscles) and after fixing the negative electrode of the endothermy apparatus to the patient's leg, the positive pole (a ball-shaped electrode) is applied to the bared sclera for periods of six or seven seconds, the object being to effect a coagulation of the choroid by heat, without searing of the sclera. After a sufficient number of applications have been made over a wide area, the sclera is trephined and the subretinal fluid allowed to escape. The retina falls back in position and as the result of an aplastic choroiditis, adhesions form to the retina and hold it in place. Technically the operation is nothing like as difficult as is Gonin's procedure: the only risk of hæmorrhage is by the trephine, and the same degree of accuracy in the localisation of the tear is not essential. Larsson claims 50 per cent. of cures by this method. 47 per cent. have been claimed as cures elsewhere.

Safar's Method: Recently the Vienna school have modified Larsson's method. Instead of using a ball-shaped electrode placed on the globe, the sclera is actually pierced with a fine sharp angled pointer which penetrates almost to the depth of the choroiditis. The sclera is pierced in a number of places and the subretinal fluid evacuated after trephining. As far as I am aware, no figures have yet been published in relation to this method.

CONCLUSIONS.

There is no doubt that modern methods have greatly improved the outlook for a condition previously regarded as almost hopeless. It is equally certain that there is a long road to travel yet: many of the cures claimed are based on the early results of treatment: certainly no case can be regarded as a cure unless the retina is in position at least six months from the time the patient is first allowed out of bed. Again and again cases have been observed where after prolonged rest in bed no detachment has been evident, but within three to four days after being allowed up, the condition has recurred.

Nevertheless, a great deal has been accomplished in the last few years. In a foreword to J. R. Anderson's publication, Sir John Parsons writes: "Meantime a ray of hope for sufferers from the disease under consideration (retinal detachment)has been afforded by a mode of treatment which is in its origin almost entirely empirical, but which, fortunately, in suitable cases is followed by an encouraging degree of success."

O.M.D.

BIBLIOGRAPHY.

1.—Archives d'Ophthal. 45, 554.
2.—Anderson: Detachment of the Retina. 73.
3.—British Journal of Ophthal. 8. 1.
4.—Arch. of Ophthal. 7. 661.
5.—Trans: of the Npth: Society of the U.K. L11. 489.

Peritonsillar Abscess.

A request to a general practitioner for a contribution to this volume is not an easy one to satisfy. Medicine is still pre-eminently an art, and therein lies the difficulty. These threads of knowledge which we so patiently acquire, many a time through our mistakes, are so diverse in nature that they would need genius of the literary order to impart.

Since the publication of Wharry's note on the supra-tonsillar method of treating quinsy, I have taken a great interest in the subject. It is seldom now that I see a case go to that extreme degree that they used to, with trismus so great that the teeth could hardly be separated. If I saw one now I should cocainize Meckel's ganglion.

Peritonsillar abscess is one of the common conditions which the general practitioner is called upon to treat, and at the same time, although not usually of long duration, it can be one of the most distressing and painful conditions. In this paper I shall discuss its symptomatology and treatment.

The tonsils are masses of lymphoid tissue, similar in structure to lymphatic glands, with recesses into their depths from the free surface. These recesses are lined with squamous epithelium and are known as crypts. At the apex of the tonsil is situated a much larger recess, the tonsillar or supra-tonsillar fossa.

The lateral surface of the tonsil is covered by a portion of the pharyngeal fascia, which is tightly adherent and forms the capsule. The capsule is related to the superior constrictor laterally, the palato-glossus anteriorly, and the palato-pharyngeus posteriorly. These latter muscles, with their epithelial coverings, form the anterior and posterior pillars of the fauces.

The tonsil cleft represents the ventral portion of the second pharyngeal pouch, and it receives its sensory innervation from branches of the glosso-pharyngeal nerve, and from descending pharyngeal branches of the spheno-palatine ganglion. This explains the pain in the ear, which is a constant symptom, and is a reflex pain via the tympanic nerve of Jacobson.

Peritonsillar abscess, as its name implies, is a condition in which an abscess forms outside the tonsil, and this abscess is situated in the areolar tissue which separates the tonsil capsule from the muscular bed. Movements of the pharynx will cause pain, hence dysphagia is a constant symptom. Movement of the posterior part of the tongue will likewise be painful and this interferes with speech. Movement of the tongue in speaking is concerned mainly with the production of consonants, and of these the explosives need the greatest emphasis. Hence the speech becomes muffled, and the explosives have a sibilant character. These two dominant symptoms of peritonsillar abscess, dysphagia and the characteristic speech, are present very early even before noticeable swelling is present.

The abscess may be secondary to any suppurative condition of the tonsil, e.g., follicular tonsillitis, Vincent's angina, and is mainly a direct result of spread via a crypt, or more commonly, the tonsillar fossa. This latter fact accounts for the greater incidence of abscesses in relation to the upper pole of the tonsil.

As soon as symptoms are manifest one must attempt to find out where the focus is situated in relation to the tonsil; whether it is in front, behind, or at the side. Good illumination is essential for inspection, and the affected side must be compared carefully with the sound side. A site of maximum tenderness may be found by gentle use of a probe, and the same instrument may be used to investigate the crypts and the supra-tonsillar fossa. If there is a bulging of the anterior pillar of the fauces, one must decide whether this is caused by pus, or by the tonsil itself being pushed forward by a collection of pus behind.

To facilitate any further measures it may be advisable to apply 10% cocaine solution to the fauces. Better anæsthesia may be induced by cocainization of the spheno-palatine ganglion. A thin cotton-wool applicator, dipped in 10% cocaine solution, is introduced into the corresponding nostril and passed to the back of the nasal cavity below the middle turbinal, and left in position for a few moments.

The supra-tonsillar fossa is explored with a pair of straight forceps, or a stout pair of cross-action nasal dressing forceps. It is usually necessary to pierce the capsule before pus is found. In many cases no more than this simple treatment is needed and the condition settles down.

If a case be first seen at a later stage in which swelling is well marked, or if previous exploration have not been successful, the abscess must be attacked as follows, according to its position in relation to the tonsil. Where the pus is directly beneath the anterior pillar an incision with a knife is sufficient. If pus be located at the back of the tonsil it may be approached between tonsil and posterior pillar with forceps.

Occasionally a second abscess will form after drainage of a primary one. The situation of the secondary abscess often bears no relationship to that of the original: I have seen an abscess, which was secondary to one at the upper pole, ballooning the posterior pillar. It was below the level of the base of tongue, and hidden until strong pressure thereon revealed it.

In conclusion, this paper suggests that peritonsillar abscess may often be successfully treated in the early stages, and that approach to the abscess is easier via the supra-tonsillar fossa, or between tonsil and pillar, than through the anterior pillar as a routine incision for all cases, regardless of their focus of origin.

G.A.M.

[Papers consulted: H. M. Wharry, B.M.J., 1929; 766. M. R. Guttman, Arch. Oto-Laryng., 1930, April. Gordon Hoople, Laryngoscope, 1926; 577.]

Eczema of the External Auditory Meatus.

Rx. Ung. Hydarg. Nitratis gr. XLV. Paraffin liquid.—fl. oz. .
Misce. Tere bene.
Fiat applicatio.

I mop out the moisture from the meatus with a small swab of cotton wool wound round the end of a match and then with a similar swab mop out the Meatus with the solution. I use it 2 or 3 times a day and find it almost a specific. I found it somewhere in medical literature, but I cannot think where. I do not think it is original. At any rate, it is valuable.

R.T.T.

Abortive Treatment of Antral Disease.

For abscess of the Antrum of Highmore operative drainage is the dernier ressort, but the family doctor sees the condition so early that he almost always has the opportunity to abort it. He sees it early because the symptoms, being from obstruction, bring the patient to him before the abscess is established. Many a time a patient comes with a stuffy cold, passing off; but with a new set of symptoms just set in, to wit: pain in the cheek-bone, a boring neuralgia in the temple and tender upper gum all on the same side.

Adrenalin in the nostril on that side to shrink the swollen mucosa and open the way into Antrum, the maxillary sinus, and then the introduction of T.C.P. ointment (*) on a wooden probe armed with cotton wool do so much for the local condition that little more is necessary. That little is quinine in effervescence and a couple or even three Veramon Tablets at bed time. Next day the improvement is marked, but the local treatment may well be repeated.

There is much in the way the ointment is applied. The patient lies on his back and a swab on a wooden probe is soaked in 1 in 1,000 Adrenalin and introduced into the nostril (middle meatus) and left in for a few minutes. Meanwhile the end of a wooden probe is barbed with a penknife and this is skilfully covered with a little wool, just enough, and no more, to slightly cap the end and bury the barbs. As much ointment as possible is introduced on this and carried to all parts of the nostril that a gentle probe will reach. The sensation is pungent rather than painful, a rhinorrhœa with a discharge of muco pus ensues, and sometimes beneficial sneezing.

A similar use of the ointment twice a week persistently will alleviate chronic nasal catarrh and cure some at least of the long standing cases.

* Trichloro-phenyl-methyl-iod-salicylic acid 0.125 per cent. in vaseline and adjuvants.

L.J.P.

Acute Otitis.

The problem of the running ear is always with us and, while chronic otitis media forms so large a portion of our out-patient clinics, it is the acute ear which causes the practitioner most anxiety. It is in these cases that correct diagnosis and treatment are so important not only for the comfort of the patient and the preservation of hearing, but also to prevent the unpleasantness, and even danger to life, of chronic aural discharge.

Diagnosis.

In a patient who is complaining of ear-ache the first question which arises is whether the pain is of aural origin or referred from elsewhere. If the auricle, external auditory meatus and drum appear normal and the hearing is not affected, search should be made for a possible tonsilitis or pharyngitis, for unsuspected caries of a back molar tooth or an impacted wisdom. Further, herpes should not be forgotten as one of the rarer causes of pain in this neighbourhood. On the other hand, in acute inflammation of the ear the classical signs of heat, pain, swelling and loss of function will be present and it is then necessary to differentiate those affecting the external ear—such as furuncle, acute eczema or erysipelas, from the deeper middle ear infections.

A furuncle must arise in the cartilaginous meatus, that is to say, in the outer third, because the skin covering the inner two-thirds of bony meatus is innocent of pilo-sebaceous glands. There may be pain on moving the auricle and often on widely opening the jaws, but there is no special tenderness over the mastoid antrum and hearing is seldom severely affected.

If the condition is not seen early and especially if the furuncle has burst through the posterior meatal wall and formed a superficial abscess behind the ear, the differential diagnosis becomes more difficult. In this case, treatment follows the old dictum "When there is pus, let it out," but the surgeon should do this slowly and deliberately under general anaesthesia and be prepared to open bone should he find that the pus has come from *beneath* the periosteum and is, in fact, really a case of mastoid abscess.

Acute eczema and erysipelas are not so difficult to diagnose from acute middle ear infections because of the typical appearance of the first and the spreading nature of the second.

OTITIS MEDIA.

After excluding the foregoing causes of acute pain we can now turn to acute otitis media. This is usually due to inflammation spreading up the Eustachean tube from the naso-pharynx and, depending upon the violence of the infection, may be catarrhal or suppurative in character. As acute catarrhal otitis media is a first stage of acute suppurative otitis media the difference between the two is one of degree; but, as might be expected, in the former the deafness is not so marked, the constitutional changes are less severe and the hyperaemia of the drum is more limited, being usually confined to the upper part of the membrane and along the handle of the malleus.

TREATMENT.

As acute otitis media so frequently complicates a cold in the head and the specific fevers, especially scarlet and measles, the treatment of the general condition of the patient and particularly of the naso-pharynx would be our first consideration.

In adults and in children who will co-operate, the inhalation of medicated steam gives relief by temporarily clearing the blocked nasal passages and allowing free discharge of the muco-pus.

R	Menthol	dr. ss.
	Tr. Eucalypti	fl. oz. i.

Sig.—One teaspoonful should be added to a pint of hot water and the vapour inhaled through the nose and out through the mouth.

In young children menthol may cause spasm of the larynx and it is wiser to use Friars balsam (one teaspoonful to the pint of hot water) or instil collosol iodine or argyrol 10 per cent. 2-3 drops into each nostril b.i.d.

In infants it is better to omit the drops altogether because of the danger of carrying the infection into the other ear through the short Eustachean tube. In all cases this danger may occur if the nose is blown violently in the usual manner, and cleaning of the nasal passages should be achieved by gently blowing *with open nostrils* at frequent intervals.

It should be remembered that the vaso-motor mechanism of the nose, unbalanced by infection, is particularly sensitive to changes in temperature, so it is important to confine the patient to his room until the acute symptoms have subsided.

Local Treatment.

The auricle and entrance to the meatus should be wiped with surgical spirit and any wax or débris cleaned gently away by means of a pair of aural dressing forceps and pledglets of cotton wool.

In "difficult" children where this method may be far from easy it is permissible to syringe the meatus carefully with warm boiled water.

The drum can now be inspected and if the inflammation is only partial, and especially if no "bulging" is present, 2-3 drops of 2½ per cent. glycerin of phenol may be warmed and instilled every four hours. The auricle is again painted with spirit, covered with scorched absorbent wool, and the patient instructed to keep a rubber hot water bottle to the affected side. In this way an attempt is made to keep the meatus sterile and to prevent secondary infection, a point of great importance in the event of perforation or incision of the drum.

This treatment may be sufficient to stay the spread of infection, but if the pain continues and the inflammation increases, no time should be lost in making preparations for paracentesis. A drum incised properly, from bottom to top, gives better drainage and is more likely to heal than one whose fibres have slowly stretched and finally ruptured at one small point.

PARACENTESIS.

The operation may be conducted in the patient's bed under general anaesthesia, for local anaesthesia in this connection has little to recommend it.

Open ether is the method of choice unless the practitioner is familiar with aural work, in which case ethyl chloride, sprayed on a mask allows ample time.

A small straight knife, pair of aural dressing forceps and scissors are placed in a bowl of spirit together with the largest size of speculum which will give an uninterrupted view of the drum. For this operation and, in fact, for all inspections of the drum, it will be found that the magnified image of the electrically illuminated speculum greatly facilitates accurate work. When the patient is under the anaesthetic the meatus is again wiped with spirit and, the speculum having been introduced, the fact that a clear view of the drum can be obtained.

THE INCISION.

The knife is passed slowly down the speculum and, when the drum is reached, the point is lowered so as to bring it as near as possible to the floor of the meatus. The incision should then be made from below upwards and should open the drum in its posterior part *right up to the roof*. If the drum is so swollen that it is impossible to define the landmarks, the membrane can be regarded as a clock face and the incision made from 5 o'clock to 1 o'clock on the right side and from 7 o'clock to 11 o'clock on the left. A burst of pus and blood immediately fills the meatus and this should be wiped away with small strips of adrenalin gauze moistened with spirit, and finally a longer dry strip is inserted and the ear covered with a sterile dressing.

AFTER TREATMENT.

In 24 hours the dressing is changed, the auricle and external meatus are again cleaned with spirit, a fresh drain inserted and the dressing applied. This toilet is performed daily until the ear is dry—a result which can be expected in most cases after adequate incision. If, however, the symptoms are not relieved promptly, that is evidence of a virulent infection or obstruction of drainage from the mastoid cells. In this event a cortical mastoid operation is called for without delay.

So far we have been discussing acute otitis media seen in its earlier stages; but frequently the patient presents himself with otorrhea which followed pain and a history of something bursting in the ear a few days previously. By this time secondary infection of the middle ear from organisms on the skin of the external meatus may have occurred; but notwithstanding that, every attempt should be made to keep the area surgically clean.

As before, the auricle and external meatus should be cleaned with spirit each day and the whole ear covered with a dressing. The vapour inhalations are used for the naso pharynx and the patient should be kept indoors in an even temperature.

Where discharge is being aggravated by a sodden condition of the external meatus a few drops of 5 per cent. mercurochrome in 50 per cent. spirit may be instilled once a day and wiped away after being left in situ for five minutes.

CONTINUED DISCHARGE.

Otorrhea persisting for more than 2-3 weeks is suggestive of some septic focus further afield. In most cases this will be found either in the naso-pharynx or as a residual infection of the mastoid antrum.

Particularly in children adenoids are a cause of trouble and, if they obstruct nasal respiration, it is now advisable to urge their removal.

Sub-acute mastoiditis is more difficult to recognise, for there may be no severe pain or mastoid tenderness such as accompanies the acute stage of mastoiditis.

It will be found, however, that hearing is considerably impaired and, after the discharge has been wiped away the meatus rapidly fills again from the perforation in the drum. The child may complain of occasional darting pains in the ear and a careful examination through the electric auriscope may show some swelling of the posterior wall of the external meatus close to the drum.

It is difficult at times to persuade parents of the necessity of an operation in a child who is otherwise fit, and two or three weeks may be employed in trying sun ray treatment, a change of air, etc. ; but it should be remembered that any long continued suppuration will lead to permanent deafness and that a simple mastoid operation is a very safe procedure in skilled hands.

In a case then, in which there is continued discharge for more than six weeks, where adequate local treatment has been tried and naso-pharyngeal sepsis has been excluded, the practitioner can feel sure that counter drainage is indicated. This can only be achieved by opening and draining the mastoid cells.

R.J.M.

Antivirus Therapy for Otitis Media.

A man of 21 had acute pain in the right ear. Carbolic glycerine drops were without any benefit, so next day paracentesis under general anaesthesia was performed. The meatus was both tortuous and narrow. The operation eased the pain, but was followed by most profuse discharge. Six weeks later, despite assiduous dressing, the discharge was as bad as ever. The patient stopped coming. A month later the man was in despair and willing to try anything. This induced me to suggest to him the experimental use of anti-virus and he jumped at the offer.

The meatus was first cleansed with plain water and dried. Owing to the shape of the meatus it was impossible to see the drum, so with a hypodermic syringe 10 minims of staphylococcal antivirus[*] were squirted into the meatus with some force. This was repeated after a minute and a plug of cotton wool soaked in vaseline was inserted in order to keep in as much fluid as possible. The patient was told to report next day without fail, but he did not come until sent for six days later. His excuse was that it was no use coming when he was cured! He had had no discharge for the first three days and very little in the last three. The proceedure was repeated, and once again he failed to appear for a week. Then he told a similar story. After this he attended regularly for a few days, but the discharge had quite ceased in three days. In the four years which have elapsed since it has never recurred.

---

[*] *The preparation employed is described by the makers, Glaxo Laboratories, as a sterile detoxicated filtrate from cultures of virulent strains of staphylococci. The company writes that their product is prepared on the basis of Pro. Besredka's work. The organisms are grown for from 2 to 4 weeks in nutrient broth, which is then passed through a bacteria-filter. The filtrate is detoxicated by heat This filtrate, together with the 0.5 per cent. of phenol, required by the Therapeutic Substances Act, constitute the "Anti-virus."*

They add that the antivirus jelly is made by incorporating the filtrate in a glycerin base, adding certain oils and 0.5 per cent. phenol.

Besredka's thesis that the skin is only sensitive to certain organisms, and that the application of their filtrates to it causes a local immunity, "cuti-immunity," and his postulate that the filtrates contain a specific soluble atoxic substance which causes this alleged immunity and which he speaks of as "Anti-virus" is set out in Annales de l'Institut Pasteur, 1921, 35, *p.* 421 *and Proc. Royal Soc. Med. Oct.* 1929.

That winter I treated successfully about thirty cases of running ear in this manner, and made the further discovery that anti-virus has a remarkable power of stopping earache before perforation takes place. One of my earliest cases was a boy of 3 who had cried for hours with earache. I had used other remedies without result before I tried the anti-virus. To see him sink into a contented sleep some half-hour after the instillation of these drops, containing only an infinitesimal amount of a biological product, was one of the most therapeutically satisfying things I have known. The experience has been repeated since then in many similar cases. To see the way in which an acutely inflamed, and even bulging, drum will settle down within 24 hours is, medically and visually, as convincing a proof of the efficacy of biological therapy as one could wish, and nearly every case shows it.

The makers have lately, at my suggestion, put up the anti-virus in jelly form. This is more convenient and almost as efficient. The rationale of the method is beyond me, but four years' experience leaves me no doubt as to the efficacy of the results.

W.N.L.

Clinical Features of Mastoiditis.

Acute mastoiditis is a common condition and is important on account of the danger of grave, and often fatal, intracranial complications which can, and often do arise, if the case remain untreated. Moreover, it is the considered opinion of some eminent otologists that many cases of chronic otitis media requiring radical mastoid operation are directly due to missed cases of "latent" mastoiditis following an attack of acute otitis media. The chronically running ear is a constant source of danger to the patient and the hearing after radical mastoid operations is so very poor that the ear, as the organ of hearing, is almost useless.

It is, unfortunately, often difficult to diagnose acute mastoiditis in its early stages, and some cases only reach the otologist late, when serious or even fatal complications have arisen, or when the ear is so damaged that some permanent defect of hearing is unavoidable.

The condition practically always follows an attack of acute otitis media and, though it could conceivably occur as a blood stream infection, it is difficult to say whether or not this ever occurs in actual practice.

In acute otitis media the classical signs of mastoid involvement are: "the development of pain, tenderness and œdematous swelling over the mastoid process." This clinical picture is, however, often absent, especially in adults, the clinical features being modified by such conditions as the age of the patient, the density and degree of pneumatisation of the bone, the patient's resistance to infection and the virulence and type of organism present. It is proposed, therefore, to give a brief résumé of the relative importance of the signs and symptoms leading to a diagnosis of acute mastoiditis and to indicate, where possible, the underlying anatomical or pathological basis.

AURAL DISCHARGE.

If a case is seen early before the onset of aural discharge, the drumhead will show signs of inflammation. It becomes red and bulging instead of concave and at one point, usually in the postero-superior quadrant, a pale yellowish spot appears. Unless the drum is incised, it will give way at this point, a spontaneous perforation occurring. Occasionally, spontaneous perforations of the drum fail to drain the middle ear adequately, in which event paracentesis must be performed to provide free drainage for the discharge.

Aural discharge is one of the most constant and important signs of mastoiditis, but is not invariably present. When drainage through the middle ear is free, the discharge is profuse, usually thick, frankly purulent and often "ropey." It may show a definite pulsation. On mopping or syringing the discharge from the external meatus, pus rapidly re-accumulates and is often in such quantity that it could not possibly be accounted for by disease of the tympanic cavity alone.

Cases of acute otitis media, in which aural discharge suddenly diminishes or ceases, other symtoms remaining unabated or increasing, should suggest involvement of the mastoid because this condition is often due to the blocking of the aditus-ad-antrum by swollen mucosa or by a collection of inflammatory débris.

Free drainage combined with efficient conservative treatment often causes early mastoid signs to subside and so renders mastoid operation unnecessary.

All cases of mastoiditis do not, however, show an aural discharge. Mr. Gilbert Chubb, of the Westminster Hospital, has reported a series of cases in which there was neither aural discharge nor marked changes in the drumhead, though other signs of mastoiditis were present and at operation marked disease of the mastoid was found.

CASE 1.

A boy aged eight had had a Swartze operation after which the ear and mastoid cavity dried up satisfactorily. Three years later he developed signs of meningitis for which no cause could be assigned. In the ear already operated on, nothing abnormal was found; but on examination of the other ear, a slight reddening and bulging of the membrana flaccida was seen. There was no mastoid tenderness. Paracentesis was performed and pus obtained. Mastoid operation was performed and it was found that the meninges were exposed and infected at one point. The mastoid showed extensive disease.

Another important sign seen on otoscopic examination is sagging or bulging of the posterosuperior meatal wall. This sign, when present, is due to a collection of pus in a group of cells situated in the posterior meatal wall and is by many otologists considered pathognomonic of mastoiditis. It must, however, be carefully distinguished from a condition of furunculosis occurring deep in the posterior wall of the meatus, by a consideration of the other clinical features of the case. It is not unknown for such swellings to be incised in mistake for boils and for cases of furunculosis to have their mastoids opened unnecessarily under the impression that the case was one of acute mastoiditis.

PAIN AND TENDERNESS.

Pain and tenderness are often present over the mastoid antrum in an attack of acute otitis media during the first three days, before drainage of the middle ear is established. Relief rapidly follows the establishment of adequate drainage of the middle ear by spontaneous perforation or paracentesis, this "early mastoid tenderness" disappearing. This has little or no significance, being due to catarrhal changes in the mucosa of the antrum, and to the accumulation of products of inflammation under pressure in the middle ear cleft, and not to any inflammatory changes in the bone.

Pain and tenderness occurring after free drainage is established is, however, an important diagnostic sign of mastoiditis, indicating inflammatory changes or a collection of pus in the cells of the underlying bone. Pain may be boring or throbbing in character, or amount to no more than a feeling of soreness or fullness over the mastoid. This pain, if severe, may prevent sleep.

Where pus in the mastoid is not under tension, particularly in cases where the cortical bone is dense, there is a remarkable absence of pain and tenderness, though the diploic part of the mastoid may be found to be a necrotic abscess cavity, surrounded by a shell of compact bone.

Tenderness is more frequently seen in well pneumatised mastoids than in the poorly pneumatised or sclerotic type. When present, it may be found at one or more of four distinct important points:—

(1) Over the mastoid antrum. This is the classical and the commonest situation where tenderness is found. It indicates a collection of pus in the air cells and inflammatory changes in the bone overlying the antrum.

(2) Posteriorly over the lateral sinus. Tenderness at this point indicates disease in the air cells and bone overlying the sinus. It is an indication for exposure of the sinus at operation, as it will be found that there is often a perisinus abscess or granulations forming on the sinus wall. More especially is this the case where tenderness in this situation is accompanied by a high remittent temperature with or without definite rigors.

(3) Over the mastoid tip. Slight tenderness over the mastoid tip can be elicited in people with normal mastoid processes when there is a large tip cell covered by only a thin plate of cortical bone. When associated with other signs of mastoiditis, tenderness at this point is of interest as indicating a cell which is liable to be and in all probability is infected and contains pus. If this cell is not opened and drained the inflammatory process is very liable to spread through the inner aspect of the tip of the mastoid into the soft structures underlying the sterno-mastoid muscle—a Bezold's abscess resulting.

CASE II.

A man aged 35 had classical signs of mastoiditis, but, in addition, had tenderness over the mastoid tip. At operation the bone surrounding the antrum was found to be diseased, but the bone below this appeared to be non-inflamed and fairly acellular. The mastoid tip was therefore not removed.

A week later it became necessary to reopen the mastoid and drain a Bezold's abscess. At the second operation a small infected cell was found at the apex of the mastoid tip.

(4) Immediately above or in front of the auricle, over the zygoma. Tenderness at this point is due to a collection of diseased cells in the zygoma or its posterior root and is usually the first sign of a zygomatic mastoiditis.

While tenderness and pain are usually associated with the formation of pus, cases with marked pain and tenderness do occur in which no macroscopic pus is detectable. In these cases there is an intense inflammatory hyperaemia of the mastoid which is often of the sclerotic type.

DEAFNESS.

There is always some degree of deafness associated with acute otitis media and mastoiditis which may be marked or so slight as to escape detection. The value of deafness as a symptom is in the diagnosis of acute otitis media with mastoiditis, from a condition of furunculosis of the posterior meatal wall with cellulitis spreading to the soft tissues over the mastoid process, a diagnosis which may be very difficult. Slight deafness is rarely of any diagnostic value, as the condition of the hearing before the onset of symptoms is rarely known, but patients will often volunteer the statement that they are growing progressively more deaf in the diseased ear. Increasing deafness is a more valuable sign as indicating active tympanic disease. Absolute, or very marked deafness, especially when accompanied by giddiness, vertigo, nystagmus and vomiting, suggests that the inflammatory process has spread to the labyrinth and that a condition of diffuse labyrinthitis has occurred.

GENERAL REACTION.

In acute mastoiditis, as in other acute septic infections, there may be absorption of toxic material into the blood stream. The ''general reaction'' resulting varies greatly in degree and is particularly severe when the pus present is under tension or when it is in close proximity to a blood sinus. Pulse and temperature are raised, the patient may show a dull, pasty complexion, his tongue is furred, and his "bowels are out of order." In severe cases there may be albuminuria or even a toxic nephritis and occasionally symptoms resembling those of meningitis may occur.

CASE III.

A woman aged 42, following a "cold in the head," complained of earache and deafness for one week and headache for three to four days, while the patient's sister stated that the patient had been irritable and "queer" for two or three days. The bowels had been obstinate for the last two or three days.

The temperature was 101·0° F., pulse 104, the tongue furred and the patient looked ill. She could not or would not answer questions sensibly but kept complaining of severe pain and headache on the side of the lesion. Her neck muscles were stiff, but there was no definite neck retraction. Her reflexes were brisk and her optic discs normal. There was a blood-stained aural discharge, not excessive in amount, and tenderness over the mastoid process on firm pressure.

At operation the mastoid was found to be of sclerotic type. The bone was hyperaemic and the only pus found was in the immediate vicinity of the antrum, and scarcely enough to have justified a mastoid operation. After the operation, however, the temperature and pulse rate fell to normal, the headache and mental symptoms disappeared, the ear rapidly dried up and the patient made an uninterrupted recovery.

The temperature in acute mastoiditis is not as a rule higher than 101·0° F. in adults, 102·0°—103·0° F. in children, unless the inflammatory process is spreading toward the meninges or sinus; and many cases, in which drainage through the tympanic cavity is free, are afebrile throughout.

In cases of acute otitis media, in which paracentesis and free drainage of the tympanum does not bring the temperature rapidly down to normal, infection of the mastoid should be suspected. All cases of otitis media, especially those which are not afebrile, should therefore be kept under observation and examined daily for any sign of mastoiditis until the acute symptoms have entirely subsided. This is very well illustrated by the following case:—

CASE IV.

A boy aged 10, after an attack of influenza, returned to school. The following morning he complained of earache and was found to have a raised temperature and some mastoid tenderness. He was sent to hospital the same afternoon with a diagnosis of acute mastoiditis.

By the time he arrived at hospital his drum had ruptured, the mastoid tenderness had disappeared and his temperature was normal. He was referred to his own doctor as a case of acute otitis media. He was sent back to hospital three weeks later with a history of recurring evening rise of temperature of 99·0°—100·0° F., of rapidly growing deaf, and that his aural discharge was still profuse. On examination there was a profuse aural discharge which rapidly re-accumulated on cleaning out the external meatus. He could only hear a loudly spoken word at one foot distance; but there was no pain, tenderness or swelling.

A Swartze mastoid operation was performed and the mastoid was found to be very extensively diseased. After operation his ear became dry in two days and his hearing was so remarkably improved that he could hear the watch at 18 inches distance a month after his operation.

SWELLING AND OEDEMA.

Oedema and swelling are late in appearance and indicate that the inflammatory process has spread beyond the bone of the mastoid process. The commonest direction for the pus to spread is towards the external surface of the bone. This causes swelling and oedema of the overlying soft parts.

No time should be wasted in waiting for oedema to occur before making a diagnosis of acute mastoiditis, as spread of the inflammatory process may occur in any direction, upward toward the middle cranial fossa, backward towards the lateral sinus and posterior cranial fossa, or forwards and inward toward the inner ear, as well as outward through the mastoid cortex. Spread to the external surface can occur at one of three points, and accordingly, three types of mastoiditis are recognised:—

(1) The Classical Mastoid.

In these cases the inflammatory process spreads directly outward through cells situated in the lateral wall of the antrum to the cortex of the bone. A periostitis follows which produces an oedematous swelling and tenderness of the mastoid process. In children the auricle may be displaced downward and forward, but displacement of the auricle is rare in adults. The retro-auricular groove is not obliterated as it is said to be in cases of cellulitis due to furunculosis of the posterior meatal wall. Later, periostitis is followed by subperiosteal abscess. This classical type of mastoiditis is much commoner in children as the antrum is much more superficial and the overlying bone is softer, more vascular than in the adult.

(2) Bezold's Mastoiditis.

When cells in the tip of the mastoid have become infected, the inflammatory process may spread through the cortex of the bone into the soft tissues of the neck, underlying the sternomastoid muscle. A hard, elongated, brawny swelling forms, which appears, on palpation, to be continuous with the mastoid process and so can be distinguished from swollen cervical glands. The overlying tissues become oedematous and, with the formation of pus, a point of softening can sometimes be detected.

A Bezold's abscess, though comparatively rare, is an important complication of mastoiditis and should be drained at the same time as the mastoid operation is carried out. Even though no point of softening can be detected, pus will often be found.

(3) Zygomatic Mastoiditis.

If pus spread forwards from the antrum into the gallery of cells lying in the posterior root of the zygoma, which cells when developed may extend for a considerable distance along it, a condition of zygomatic mastoiditis occurs.

A tender oedematous swelling forms above and in front of the auricle which is displaced downwards and outwards. Mastication becomes difficult and there is sometimes pain over the zygoma. Subperiosteal abscess readily forms under the temporal fascia, the swelling being in front of the auricle and may extend for some distance upwards on the side of the head.

Case V.

A girl aged 18 attended the out-patients with a discharging sinus in front of her ear immediately below the zygoma, which was said to be the result of a parotid abscess. On passing a probe down the sinus, bare bone could be felt and the probe could be passed back to a point immediately above the meatus. On exposure of the zygoma, a sinus leading into the bone of the posterior root was found, and a probe could be passed down this into the bone in the region of the mastoid antrum. On opening the mastoid, the bone in the neighbourhood of the antrum was found to be extensively diseased and a track of diseased cells could be followed up into the zygoma.

The inflammatory process can be spread in directions other than toward the external surface of the bone. The commonest direction is backward toward the lateral sinus where a perisinous abscess or a sinus thrombosis may occur. There are cases, fortunately rare, where the first sign of mastoid involvement is the development of an intracranial complication. This is well illustrated by Case I and by the following case:—

CASE VI.

A man aged 46 complained of earache and aural discharge for a week before admission to hospital On the morning of admission he had had three rigors and his temperature had reached 105·0°F. There were no mastoid signs. At mastoid operation a large foul perisinus abscess was found and the sinus, though not occluded, contained a septic thrombus. The lateral sinus was opened, cleared out and packed; and the jugular vein was tied. Rigors ceased; but a week later the man died from septicaemia. Post mortem revealed a septic infarct of the lung and signs of septicaemia.

SUMMARY.

Though the majority of cases of mastoiditis are easily diagnosible, there are a considerable number which present great difficulty. There is no sign or symptom which is invariably present in all cases of acute mastoiditis.

Aural discharge is the sign most consistently present and when purulent and in such quantity that it could not be formed in the tympanic cavity alone, is almost diagnostic of mastoiditis even in the absence of other signs.

Though "early mastoid tenderness" is of no value, "late mastoid tenderness," when present, is diagnostic of inflammatory change and, usually, of the presence of pus in the bone underlying the point of tenderness.

The only real value of deafness, as a symptom, is in the diagnosis from conditions due to furunculosis or as suggesting a labyrinthine complication.

The general condition of the patient is important indicating as it does the degree of toxic absorption.

Severe general symptoms may indicate operative interference in a case which would otherwise be treated conservatively. Swelling and oedema are late signs and a diagnosis of mastoiditis should be made if possible before the disease has reached such an advanced stage.

The writer expresses his indebtedness to Mr. Victor Lambert and Mr. E. S. Burt Hamilton, of the Manchester Hospital for Diseases of the Ear, Nose, Throat and Chest, for permission to quote cases seen at the St. Anne's Home, Bowdon, while Resident Medical Officer there, and to Mr. A. R. Dingley for permission to quote two of his cases seen at Golden Square Hospital.

B.P.R.

Some Notes on Intrinsic Carcinoma of the Larynx.

(Cancer of the Vocal Cords).

In the year 1855 Mannuel Garcia, a teacher of singing in London, invented the Laryngoscope. The influence which this simple but epoch-making discovery has exerted on Medical Science cannot easily be over-estimated. With the practical application of his instrument a whole new field was opened up in medicine, and from this date clinical laryngology, as we know it to-day, was evolved. Until this time most of the laryngeal diseases were of purely academic interest, but now they could be recognised and treated during life.

Amongst the many pathological states, which from this time became clinical entities, none is more interesting than malignant disease of the larynx, and—more particularly—malignant disease of the vocal cord.

Within a few years of the clinical recognition of malignant disease of the vocal cords, this disease brought about the tragic end of the great Emperor Frederick of Germany—an event of international importance and one which perhaps caused the biggest difference of opinion and the bitterest professional quarrel that the history of Medicine has ever known. The shadow cast by this royal tragedy still seems to linger about this dreadful condition as most practising laryngologists must, from time to time, feel the bitterness and disappointment of seeing a case of malignant disease of the throat which, having started in the vocal cord, has been allowed through stupidity, ignorance or neglect, to leave this favourable site and become an extrinsic carcinoma—an event which adds considerably to the gravity of the prognosis.

Malignant disease of the vocal cord or, as it is sometimes called, Intrinsic Malignant disease of the Larynx, is usually epitheliomatous in nature, and whilst sarcomata have been described, they are rare in the extreme and are usually secondary to sarcomata elsewhere in the body.

From a surgical point of view, intrinsic carcinoma of the larynx is not at all an unfavourable site because, owing to the peculiarities in the lymphatic drainage of the vocal cord, metastastic deposit in the neighbouring glands is very slow so long as the growth remains localised to the cords. The lymphatic system is sometimes referred to as a "closed" lymphatic system, and it has been demonstrated experimentally that Lamp Black injected into the cords remains localised for a long period and is with difficulty recognised in the lymphatics of the area. Added to this low malignancy, there is the additional fact that a growth of any kind on the vocal cords produces early manifestations of functional disability of the voice in the form of hoarseness. It is from this latter symptom that suspicions of malignant changes in the vocal cord should always be aroused, and it should be an invariable rule that hoarseness persisting for more than 14 days should always receive the attention of a competent laryngologist This is of tantamount importance in people of middle age or later.

The hoarseness of malignant disease has in itself nothing to arouse the suspicions as to its actual cause in the majority of cases. It is usually persistent once it becomes manifest, although it is not unknown for there to be slight but transient remissions in the symptom. The hoarseness may persist for months in neglected cases, and—if the practitioner must wait for pain, wasting and the expectoration of blood-stained mucus before calling in the help of a laryngologist—valuable time must be lost, and the chance of producing a cure irrevocably forfeited.

I do not consider that there is any necessity in a short communication such as this to discuss the laryngoscopic pictures which this disease may present, but I would utter a word of warning against the fallacy which is so prevalent—that malignant disease of the vocal cord always produces a paralysis of the cord on the affected side. Where a paralysis of the cord co-exists with the disease, the gravity of the prognosis is considerably increased, and one should never wait for this sign before clinching the diagnosis. I do not wish it to be assumed that in the earliest stages intrinsic carcinoma is necessarily easy to diagnose—it may be difficult in the extreme to arrive at a positive diagnosis, though in cases of doubt a biopsy of the suspected tumour can be performed and a histological examination of the tissue made. Of the treatment of this condition one must admit at the outset that, as in all cases of malignant disease, the surest foundation for treatment lies in its early diagnosis.

At the present time we rely on two forms of treatment: (i) on operative treatment; (ii) treatment by Radium. There is no unanimity of opinion as to which method is the best. The operative treatment consists of dividing the thyroid cartilage and removing the whole of the affected cord, including the false cord, and a large portion of the arytenoid region at the back of the larynx and, if necessary, carrying the dissection round to the anterior portion of the opposite cord if this has become involved. For the excellence of this method, when applied to properly selected cases, we owe a debt of gratitude to Sir St. Clair Thomson, who has placed the operation on such a firm foundation, and in whose hands such striking results have been obtained. The radium treatment of intrinsic carcinoma is usually carried out according to the technique elaborated by Finzi and Harmar. Briefly, this consists of the removal of a "window" or mortice of the thyroid ala on the affected side, thus exposing the inner layer of laryngeal perichondrium as it lies in contact with the growth. The radium needles are then applied to the growth which is thus exposed, and allowed to remain in position from 7 to 10 days according to the dosage used. These are removed separately at a subsequent date.

It is, perhaps, too soon to offer any concrete opinion as to the relative merit of these two methods of attack, but I do feel that the functional results after radium treatment are, in my experience, better than the after results of laryngo-fissure with which I have come in contact.

Before closing, I would again like to stress the warning which the symptom of hoarseness should bring to us all. It is as the message of a lighthouse which sometimes sheds an uninterrupted beam, or at other times blinks out its warning with periods of remission, but the wise doctor, like the wise mariner, will never ignore the dangerous possibilities of which it is an adequate warning.

V.L.

The Use of Calcium Gluconate in Obstetrics.

A paper has recently appeared by Dr. Theobald emphasising the beneficial effects of injections of calcium gluconate (Sandoz) in pregnancy; a paper, incidentally, with which my limited experience agrees. I have also found these injections of value during and after delivery owing to their hæmostatic effect, and also owing to their power of restoring tone to the capillary system.

The most dramatic case in which I proved the advantage of such injections was a young primipara. She had a fairly easy labour; but when the placenta came away the fundus of the uterus followed, complete inversion of the uterus resulting. With the help of my partner the uterus was replaced, but the woman was profoundly shocked and there was profuse hæmorrhage. 10 c.c. of Calcium Sandoz were injected intravenously and 10 c.c. intramuscularly with the most gratifying result. The hæmorrhage soon ceased, the collapse passed off quickly, a normal puerparium followed with plentiful lactation, and the only noticeable feature was the extraordinary scantiness of the lochia. This latter feature has been noted by continental gynaecologists, but I am not aware of any reference to it in English literature. The reduction of the lochia is often striking, and I have several times given Calcium Sandoz to debilitated mothers at their confinements with the aim of diminishing the loss, hoping thereby to improve their chances of being able to nurse their babies. The effect has usually been satisfactory. It might be thought that diminished lochia would interfere with involution; but in practice this has not proved to be the case, but the fact has been rather the reverse. This is possibly because the calcium seems so markedly to improve the patient's general health and well-being. The whole question of the abundance of lochia or otherwise seems to have attracted little attention.

In post-partum hæmorrhage the effect of calcium gluconate can be almost magical, while it also seems useful in the uncommon cases of female bleeders, obviously not true hæmophiliacs. In one such case, a young woman whose little cuts would usually bleed for days, I prepared her for confinement by several injections of calcium laevulinate.

After the separation of the placenta there was very little bleeding, and what there was clotted unusually rapidly.

To those who have not hitherto tried injections of calcium gluconate in obstetrics I can recommend their use. Intra-muscular injections are quite painless and act almost as readily as when given intravenously. Calcium laevulinate seems an even more effective salt, but intra-muscular injections are usually painful. That, though it may be forgiven in an emergency, is the reason for the usual recommendation to give calcium laevulinate intravenously —a requirement which decidedly limits its utility.

M. J. M. MacL.

Streptococcic Vaccine in Puerperal Fever.

The most interesting experience I have come across lately arose out of the lectures on Rheumatoid Arthritis, which were given to the Cheshire panel by Dr. Warren Crowe. In replying to questions Dr. Crowe mentioned that he had used streptococcic vaccine in an acute case of septic pneumonia.

At the West Heath Sanatorium, Congleton, I have charge of Puerperal cases. Dr. Crowe's remark led me to try Streptococcic Vaccine in these. At first it seemed almost a forlorn hope; but so far its use has been successful. I might say that Antistreptococcic Serum had previously been used but did not seem to have any marked effect, whereas the vaccine showed its effect almost at once by the reduction of temperature. One great advantage of its use was the small bulk of the dose. Three to five minims of a 20 million to 1 c.c. Vaccine were given each day, a little before the time when a rise of temperature might be expected (generally in the evening) and were repeated later if required. One case in which recovery took place was exceptionally severe, as the septic condition was due to a virulent form of Erysipelas.

As the patients were not in a condition to stand much moving, the only intra-uterine treatment was the injection into the uterine cavity of pure T.C.P. once a day.* This proved its value by the presence in the discharge, after a time, of clean white odourless shreds.

J.P.L.

---

* Using a Record Syringe and a Bozemann uterine tube.

Intra-Uterine Glycerine.

Since its introduction by Remington Hobbs the intra-uterine administration of glycerine has held a definite place in the treatment of puerperal infection.

These notes are concered with the indications for its use and the technique of its application.

INDICATIONS.

It is idle to pretend that glycerine in the uterus will cure puerperal septicaemia. It will not. The type of case for which it is suitable is local uterine infection. These cases will, of course, usually recover without it, but a method of treatment which will shorten the period of pyrexia, thereby releasing a nurse back to duty and a doctor from some anxiety of mind, has much to recommend it.

The case which shows a daily rise of temperature to 100·0°—102·0° F., with slight uterine tenderness, and delay in involution, but without marked rise in the pulse rate, is the one which can usefully be treated with intra-uterine glycerine. Should the lochia be foul, then this is an additional indication for its use.

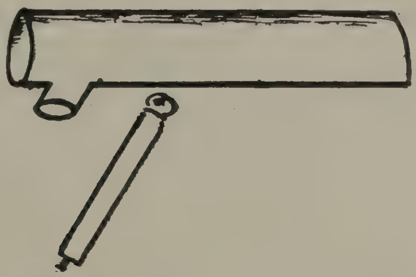
TECHNIQUE OF APPLICATION.

The instruments required are:—

1.—A Ferguson's speculum,
2.—A No. 10 rubber catheter,
3.—A pair of volsellum forceps,
4.—A 10 or 20 c.cs. syringe,
5.—A kidney dish,
6.—10-20 c.cs. sterile glycerine.

All instruments are, of course, sterilized.

It is extremely important to have the patient in a good light. This may be difficult in some Cheshire cottages, so I carry a Ferguson's speculum to which a light can be attached. This is an ordinary Ferguson's speculum with a small glass covered window at its external end. Into this a small hand torch is screwed, giving a shadowless light throughout the inside of the speculum.



The sterile syringe is filled with glycerine by removing the plunger and pouring the fluid into the barrel. The plunger is then re-inserted, the syringe inverted, and the air bubble expressed. The catheter is attached to the syringe and filled with glycerine, some of which is allowed to run over the end of the Ferguson's speculum as a lubricant. The volsellum is made to grasp the catheter about 1½ins. from its free end. The whole apparatus is now arranged in the kidney dish conveniently to hand.

The patient is placed in the left lateral position and the upper leg raised by an assistant or by the patient herself, placing her right foot on her left knee.

The vulva is swabbed over, and the Ferguson's speculum gently inserted so as to expose the cervix. If the special speculum be used, the light is screwed in by the nurse, who uses it as a handle to steady the speculum.

The kidney dish with its contents is then brought close to the patient's left thigh, and the catheter inserted into the os uteri by means of the volsellum forceps. It should go in about four inches. The glycerine is then injected until it begins to run out round the catheter. The uterus will usually take about 10 c. cs. during the first week.

Owing to the laceration of the cervix of varying degree which takes place during delivery, the cervical orifice is sometimes a little difficult to recognise; but once it is found the catheter will pass easily into the uterus in every case.

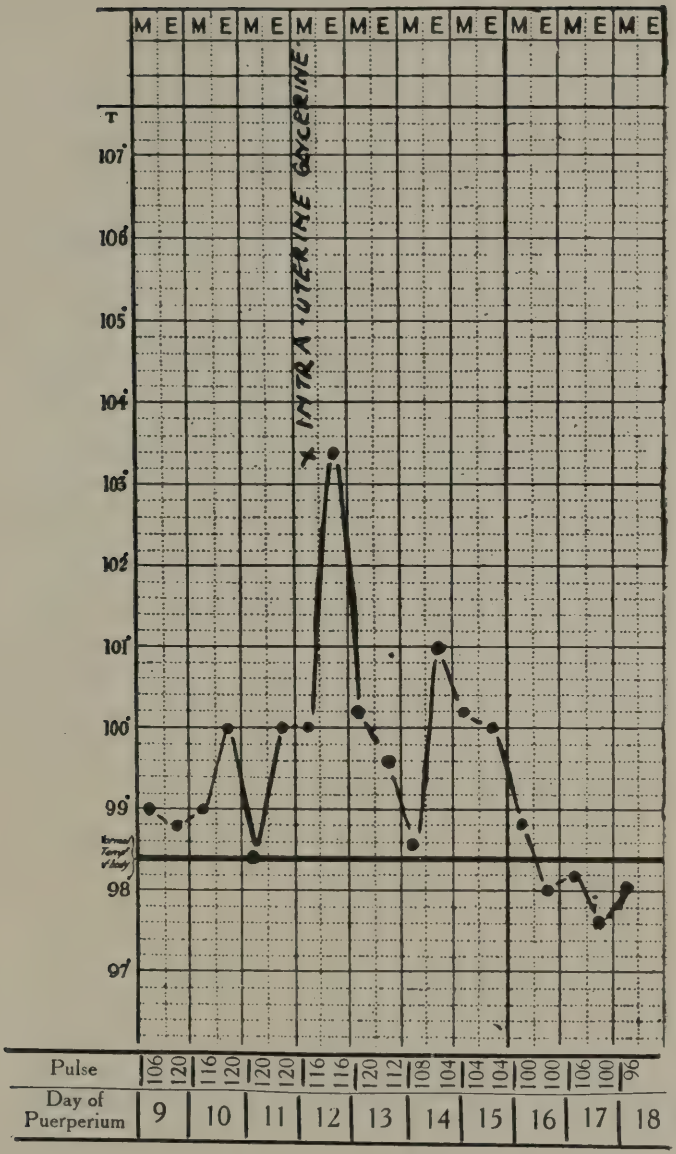
If a large instrument—forceps or volsellum—be used to hold the catheter, the operator will be unsighted with regard to the end of the catheter which he is going to insert into the os.

There are no other difficulties in this simple manoeuvre. It should, however, be emphasised that all instrumentation should be carried out with great gentleness.

In those cases where it is going to be successful, some good effect should follow a single dose of intra-uterine glycerine. If this has been observed, but the temperature shows a tendency to rise again, then the dose may usefully be repeated.

Mrs. V.A., Aet. 28. Central placenta praevia.
Vaginal plugging carried out before admission to hospital.
Placenta pierced. Willet's forceps applied.
Natural delivery of still-born baby.
Ran temperature as for days 9 and 10 in chart until twelfth day, when there was a sudden rise to 103.4.
Intra-uterine glycerine given. Temperature settled after one further rise.

Illustrative Case.



J.G.W.

Ovarian Residue Used in Midwifery.

The object of these notes is to give an account of some exceedingly good results obtained by the use of Ovarian Residue in cases of protracted labour. No originality is claimed.

The drug used was "Opojex" brand of Ovarian Residue, i.e., ovary sine corpore luteo, prepared by British Organotherapy Co. It is supplied in ampoules of 1 c.c. for intramuscular injection.

It was given in confinements when labour was protracted on account of weak uterine contractions, where there was no obstruction to labour or malposition of the foetus. In some cases, when the cervix was fully dilated, and the foetal head low down, but where no advance was being made, it was found that the contractions quickly became stronger and the child was born in less than a quarter of an hour after one injection of the drug.

These are occasions when forceps would usually be applied.

It is also claimed that the uterine contractions are rendered less painful, and that there is relaxation of the cervix and soft parts. To obtain this result, the injections should be given at intervals of two hours throughout labour.

The drug is said to act through the autonomic system, and not directly on the muscle fibres, thus differing from pituitary extract.

It may also be used for the induction of labour, in conjunction with the usual procedure of castor oil, hot bath, etc.

CASES.

1.—2-para. Patient had been in labour about six hours. The os was fully dilated, head low down, and pains fairly frequent, but not strong. No appreciable advance was being made. An injection of

1 c.c. of Ovarian Residue was given. In five minutes the pains were much stronger and the child was born in a quarter of an hour.

2.—Primipara. Patient had been in labour 22 hours. Os fully dilated, pains weak. 1 c.c. Ovarian Residue was injected intramuscularly. The pain rapidly increased, and the baby was born in ten minutes.

3.—Primipara. In labour 12 hours. Pains infrequent and weak. After an injection of 1 c.c., the pains became stronger, but were insufficient to expel the child. Forceps were applied, and an 8½-lb. baby was delivered with some difficulty.

4.—Multipara. About one week overdue. Castor oil and enemata and quinine had been given on several occasions, but labour had not resulted.

Injections of Ovarian Residue were given at 2-hourly intervals, together with a further dose of castor oil. Labour commenced after the third injection. The infant was born after a short and uneventful labour.

Conclusion.—This is a valuable and simple aid to midwifery, and in many cases obviates the use of forceps. No untoward results have been found. The uterine contractions are markedly increased within a few minutes of the injection, and the baby is born in a short time. The placenta is expelled without difficulty.

A.B.

The Friedman Test for Pregnancy.

The Zondek-Aschheim test for pregnancy, of which the Friedman test is a modification, has developed more or less incidentally out of investigations into the functions of the pituitary. The reaction on which the test is based is intimately related to the subjects of ovarian and pituitary function.

I do not propose in this article to deal with the theory of this part of the subject; but to give a few facts concerning the original Zondek-Aschheim test and Friedman's modification in which rabbits are used as the test animals instead of mice.

Briefly the history of the test is as follows:—

In 1908 Erdheim and Stumme showed that a marked enlargement of the pituitary occurred in pregnancy; and Evans and Long in 1921 found that by the intraperitoneal injection of fresh extracts of the anterior pituitary they could cause an increase in the weight of ovaries of immature rats and that these ovaries contained corpora lutea. In 1927 Smith and Engel produced ovarian changes in immature rats and mice by the daily implantation of the anterior lobe of the pituitary, and in the same year Zondek and Aschheim demonstrated changes in the ovaries of immature mice following the injection of urine from pregnant women. They suggested that these findings might be made the basis of a biological test for pregnancy.

Zondek and Aschheim clearly showed that the urine of pregnant women contains at least two hormones, one derived from the ovary and the other similar, as regards its action on the ovary, to an extract of the anterior pituitary; and by experiments on mice they charted the relative amounts of each of these hormones found in urine throughout pregnancy.

The ovaries of a female mouse do not normally mature until the animal is six weeks old; but Zondek and Aschheim demonstrated that, by injecting subcutaneously varying amounts of urine from a pregnant woman, they could produce ovarian maturity, as shown by ovulation and luteinisation, in immature mice three weeks old. Five female mice, three weeks old, and weighing not more than six grammes each, are taken and injected subcutaneously, laterally in the back, with varying amounts of urine which must be from the first sample passed on rising in the morning, in order to secure a concentrated specimen.

The injections are given to each animal three times on the first day and twice on the second day—the animals being killed 100 hours after the first injection and the ovaries examined with the naked eye or hand lens.

If the test is positive the ovaries are two to three times the normal size, distinctly red and show corpora lutea or corpora haemorrhagica.

It is important to fix the above standard for a positive test, as the ovarian hormone may give rise to some changes in the uterus and tubes and this hormone is present in excess in the urine in other conditions, such as amenorrhoea and the menopause, as well as in pregnancy.

Zondek and Aschheim's first published series gave the results of 880 tests—470 from non-pregnant women and 410 from pregnancy: the accuracy of diagnosis by the test was 98.6 per cent. —the accuracy of diagnosis in the first eight weeks of pregnancy was 98 per cent.

There were two false positives—one from a case of cystitis and one from a healthy man. The test was several times positive as early as three to five days after the date of the first expected menstruation.

This series showed that a negative result might be expected about the eighth day after delivery; but in the case of abortions, where it is not uncommon for fragments of placenta to be retained, it may remain positive for nine to twelve days, i.e., for as long as living placental tissue is in biological contact with the maternal blood and for some few days afterwards.

With hydatidiform mole Zondek and Aschheim got a strong positive reaction and also in one case of chorion-epithelioma; but they state that after a hydatidiform mole the test may remain positive for two months without there being necessarily an inference of malignancy.

The results carried out in many different laboratories have confirmed the accuracy of the original observations.

The figures for the second year's working of the Edinburgh Pregnancy Diagnosis Station show an error of 2.24 per cent. (all false negatives), for the third year 2.67 per cent., and for the fourth year 0.89 per cent. (all false negatives except one).

Friedman in 1929 demonstrated that the urine of pregnant women contained a substance which caused ovulation in the rabbit and suggested a method for the diagnosis of pregnancy. It is a modification of his method which we have used. Ovulation in the rabbit does not occur rhythmically, but only after copulation; and following copulation ovulation occurs in eight to ten hours. Ovulation, as shown by the presence of recent haemorrhagic follicles in the ovaries of a segregated rabbit following on the injection of urine, is proof of pregnancy.

Many methods of carrying out the test have been advocated, as much depends on the dosage of urine, mode of administration and the time allowed to elapse between the injections and the examination of the ovaries.

We have used Dodd's technique, which is as follows:—

Healthy female rabbits are used for the test—the animal must be at least fourteen weeks old, must not have been recently mated and, of course, must not be pregnant. To ensure these points the animals are kept in separate cages for three weeks before using.

A morning sample of urine is taken, allowed to cool and then filtered through ordinary filter paper and an injection of 6.0 c.c. given intravenously on each of two successive days. The animal is killed 48 hours after the first injection and the ovaries examined with the naked eye. The presence of recent corpora haemorrhagica indicates a positive test—mere congestion or enlarged follicles are not sufficient for a positive diagnosis.

The Friedman test appears to be the test of choice in most cases for the following reasons:—

(1) Only one animal is needed for each test and no large stock need be kept.

(2) The technique is much simpler.

(3) The result is obtained in 48 hours instead of the 100 hours required with the mouse test.

(4) When due care is taken in selecting the rabbits, observing strict segregation and exercising discretion in doubtful cases, the results compare favourably with the Zondek-Aschheim test on mice.

The first series of results of the Friedman test published by several observers during 1929, 1930 and 1931 did not show any true false positives, i.e., a positive result in a case where the diagnosis of pregnancy was subsequently excluded; but during the last two years some authors have noted discrepancies. Some of these errors are undoubtedly due to faulty technique, but there is a residue of true false positives and it now appears that occasionally at the menopause and very occasionally in ovarian cysts with amenorrhoea the urine may give a positive Friedman test in the absence of pregnancy. These discrepancies show that in these conditions the test must be interpreted in conjunction with the clinical findings.

In my first series of 100 cases no such discrepancies have occurred.

The chief uses of the test are as follows:—

(1) The diagnosis of early pregnancy.—The concensus of opinion is that a positive reaction generally occurs about 20 to 25 days after the coitus responsible for the pregnancy.

Three cases in my series gave a positive reaction within two weeks of the first missed menstrual period. The early diagnosis may be valuable for social considerations, as in the case of a woman contemplating residence abroad, and also in cases where it is necessary to terminate the pregnancy as early as possible, as in advanced phthisis, severe heart disease, etc.

It appears from the reports of the Edinburgh Station that occasionally a persistently negative test occurs in a case of proved pregnancy and it is found that in these cases the pregnancy seldom proceeds to term.

If the test is negative and pregnancy is still suspected, a further test should be made two or three weeks after the first one.

(2) The differential diagnosis between pregnancy and other pelvic tumours—ovarian cysts, fibroids, salpingitis, etc.

(3) The differential diagnosis between ruptured ectopic and other conditions with which it is likely to be confused, such as acute appendicitis, tubo-ovarian abscess, etc.

In tubal gestation the test will remain positive as long as living placental tissue is present and this must be borne in mind in interpreting the test in this condition.

Two cases in my series, diagnosed as possibly ruptured ectopic gestations, will illustrate this. The test in the first case was negative and at operation there was found a tubal mole (the foetus having died some time previously): in the second case the test was positive and operation showed a twisted ovarian cyst with a three months' uterine pregnancy.

(4) In cases of abortion and threatened abortion.

A negative test following an abortion shows that the products of conception have completely separated from the uterus. A positive test a few days after a threatened abortion shows that the pregnancy has not terminated or, at least, that placental tissue is still in contact with the maternal circulation.

After full time delivery, with complete separation of the placenta, the test becomes negative in two to three days.

(5) The diagnosis of foetal death.

When the Friedman test becomes negative in a case of proved pregnancy, foetal death is indicated. A negative test is usually obtained in seven to fourteen days after the death of the foetus in utero, but cases have been recorded in which this period has been exceeded.

I have had two cases, both eight and a half months pregnant, where a negative test has been followed by the expulsion of a still-born infant.

In another case a patient, five months pregnant, with a brown vaginal discharge, was told that the child was dead. The Friedman test was positive and the pregnancy proceeded to term.

(6) In cases of hydatidiform mole the test is strongly positive and it may remain so for two months after the mole has been passed.

After the passage of a hydatidiform mole the urine should in all cases be tested at monthly intervals; if positive after the first month repeat in a further month's time; if still positive consider the question of chorion-epithelioma.

The relative frequency of malignancy after hydatidiform moles and the fact that symptoms may only occur when chorion-epithelioma is well established and beyond operative cure, make the test extremely valuable in these conditions.

A positive test after the removal of the uterus for chorion-epithelioma is an indication of the presence of secondary growths.

The following cases will illustrate these points:—

(1) Test negative one month after passing mole —no further symptoms.

(2) Test negative after two months— no further symptoms.

(3) Test positive after two weeks and four weeks, negative after two months and three months—no further symptoms.

(4) Test positive after six weeks and some uterine haemorrhage in spite of thorough curettage. The uterus was removed and showed a typical early chorion-epithelioma. Subsequent tests were negative.

(5) Test positive after three months but no definite symptoms. The uterus was removed and sections showed the structure of chorion-epithelioma. A subsequent test was negative.

(6) Test positive three months after an abortion. The uterus was removed on account of the uterine haemorrhage and the persistently positive Friedman test. Three weeks after the hysterectomy the test was negative, but the portions of the uterus, examined microscopically, did not show any evidence of chorion-epithelioma or products of conception. In this case it might be that there was a small growth which we failed to section: the fact that the test became negative so soon after the removal of the uterus is very significant.

SUMMARY.

BIOLOGICAL TESTS OF URINE FOR PREGNANCY.

1.—The Zondek-Aschheim test, 1927. The morning urine of a pregnant woman, containing as it does anterior pituitary extract, is injected 5 times in two days into five female mice, each 3 weeks old and weighing 6 grammes or less. The mice, killed after 100 hours, shew ovaries three times larger than normal with corpora lutea or corpora haemorrhagica.

2.—The Friedman test, 1929 (Dodd's technique). A fourteen week old rabbit, isolated 3 weeks, is injected intravenously with 6.0 c.c. of the filtered urine on 2 successive days and killed in 48 hours. In all rabbits ovulation occurs normally only after insemination, therefore in the animal employed recent corpora haemorrhagica indicate a positive test.

3.—The tests are of value in diagnosis of

(a) Early pregnancy.

(b) Differential diagnosis of pregnancy from ovarian, etc.

(c) Differential diagnosis between ruptured ectopic and tubo-ovarian abscess, etc. [Test *plus* if placental tissue present.]

(d) Abortion, complete (test *minus*).
,, , threatened (test *plus*).

(e) Foetal death (test, after 2 weeks, *minus*).

(f) Hydatidiform mole (test *plus plus* and so continues for 2 months after mole passed).

(g) Chorion-epithelioma (tests continue *plus* 2 months and more after discharge of hydatidiform mole).

G.S.S.

School Medical Inspection.

School Medical Inspection deals for the most part with common-place defects and disorders. It is the recognition of the needs of the individual child which results from the composite picture built up by routine examination and the surprising variety of abnormalities disclosed by it which renders the work of great interest.

There are three preliminary essentials: to gain the confidence of the child, to get from the mother a correct history of previous illnesses, and to record all the data in an accessible and permanent form.

There can be no better way of displaying the problem which confronts the School M.O. than to set out in a few lines the most frequent commonplace defects, disorders and needs. The parts of the problem will then be seen in proportion and its magnitude can be judged.

(i) Tonsils and adenoids are common. What is the criterion of the need for their removal? Certainly operation is needed when they are accompanied by

(a) sore throat;
(b) rheumatic pains;
(c) otorrhœa.

The results in all three cases are, in the writer's experience, usually successful.

(ii) Otorrhœa. Not a few children enter upon school life with running ears. The seriousness of the condition has not been realised by the parents. There should be a better chance of getting prompt treatment for otorrhœa which begins during school life. A good deal of successful treatment of these cases is carried out in school clinics.

(iii) Cervical adenitis is common in town children. For these patients open-air schools are invaluable.

(iv) Rest for growing children is a paramount need. A child's health and progress at school are in my experience only too often hampered by want of sleep. The practice of encouraging young children to visit the cinemas is to be deplored.

(v) The cinema is further responsible in young children for a bad influence on the nervous system. The risk of causing chorea is not imaginary.

(vi) Clothing is more often too heavy and in too many layers than too scanty. Many of the children are over clothed in the summer and autumn.

(vii) The exhaustive physical examination of a child must preceed the mental. Deafness or defective vision, unrecognised, have in the past led to the label 'dull' or 'deficient' being given to the mental capacity of many a good brained child.

G.H.

The Doctor and the Mother.

During the last twenty years an effort has been made to disperse the prevailing ignorance as to the proper nurture of children.

On the departure of the visiting nurse, the mother in certain walks of life has the benefit of clinics and day nurseries where she can receive help and advice. The very poor, very ignorant woman does not care sufficiently to attend, and the woman higher in the social scale has nowhere to go for reliable information.

Every woman's magazine deluges her with advisory paragraphs, varying, eccentric and contradictory, heralding the arrival of yet another patent food and resulting in the artificially fed baby being turned into a test tube—to break at last from over-experimenting ! That mothers turn to such sources for their information is due to the general practitioner having been trained to recover children from ill-health, rather than to preserve them in health. [Dentistry has here reached ahead of medicine.]

The doctor present at childbirth and attending for the subsequent fortnight assumes that the nurse is giving the mother such information as she needs on rearing the infant, and hesitates to encroach on her sphere. The nurse is merely ministering to the immediate needs of mother and baby, and not presuming to instruct, since a doctor is in attendance. The young mother left with her first child, herself weak, inclines to take the "easier" way, to which her literature points.

The State insists that from five years the child shall receive organised education. Resultant on this is a very prevalent belief that up to the age of five nothing matters beyond the bodily care of the child. The family doctor, if consulted during these most important foundation years, is the only person with power and knowledge to correct this attitude. It is his duty to do so. He must have knowledge of the child-mind. The infant needs individual attention—he cannot take his place with the group.

The doctor having ushered the children into the world, from then on holds the position of skilled patcher and repairer ! This is the main bent of medical school training. Might not a little more time be devoted to qualifying men to advise on nurture ? The general practitioner must eradicate the belief that he is not interested in anything less tangible than tonsils.

His opportunity occurs, for instance, when he is called upon to treat a child suffering from loss of appetite, the child who has disturbed nights, or who cannot satisfactorily control his excretory organs. If the doctor were called in to make the naughty child good—nine times out of ten he would find the treatment within his province !

Loss of appetite spells boredom as often as bowel trouble. If we advocate fresh air, let us also specify in what way we wish the child to spend those hours in the open, warning the parent against dreary walks and compulsory, but often lonely, garden play. Even such details as the value of bright china at meal times must be remembered. Recognition of the especially keen sense of smell which a child has through the first years of life, and which often makes some foods distasteful, is essential if we are to make either diet or medicine of value.

Bad nights may, of course, be due to teething, wrong feeding or late suppers—but equally they may be caused by racial fear of the unknown aggravated by so simple a matter as the furry sensation of the bed clothes! A new type of blanket, for instance, may cause bad dreams. Examining the bed coverings is worth the while of the family doctor. If he takes no notice of the little details of management, the mother will feel that he is not really interested. A child may struggle through night after night of fear expressed, or, worse still, suppressed—possibly in later days to add one more to the numbers of those whose adult lives are spoiled by "neurasthenia," and all for want of his attendant condescending to understand the minutiæ of management.

Control of the excretory organs is now being taught the little child from birth. Midwives and nurses generally appreciate the value of encouraging regular and clean habits in very early days, and the mother, if only to cut down labour, carries on their training. How many mothers, however, realise the harmfulness of certain types of underwear, especially for boys, and the connection between the use of combinations and similarly shaped sleeping-suits and the habit of masturbation from which many little children suffer—and the unclean habits that follow?

Rest at mid-day and early bed-time hours are excellent: whilst urging these, the understanding doctor will suggest the equal necessity for something in the child's room to engage his attention before he falls asleep. One of the most invaluable of old-fashioned pretty things is the tinkling wind-glass, cheap to buy and excellent for the purpose. We encourage fearlessness, yet the night-light is still of value!

Here, then, are three ordinary examples of difficulties which may hinder the early development of the normal child: (i) Blankets recalling possibly some atavistic and horrid memory evoked by the touch of furry things; (ii) clothing which chafes, causing precocious sensations and unclean ways; (iii) externals which happily occupy and sooth the drowsing attention, conferring security and restful sleep. These are not obscure diseases necessitating appeal to the pediatrist. They are examples of matters which the general practitioner can handle with a breadth of ideas and in a detailed way which a specialist out of touch with the child's home cannot hope to employ. This opportunity would justify more attention to child psychology in the academic years.

Medicine is not like the Law. De minimis non curat lex: but medicine does care for minutiæ, and the practitioner who deals well with children condescends to the little things which influence their mentality.

B.B.

Medicine and The Law.

The writer of this article, besides being a doctor, is a solicitor, a former member of the Bar, and for two years was a deputy coroner.

Whether my experience has or has not been profound, it has been varied, and I will endeavour to crystallize a few reflections consequent thereupon.

In the first place, I would remark that the average general medical practitioner finds it difficult to "orientate" himself in a Court of Law.

Doctors who frequently act as medical assessors, expert witnesses or police surgeons of course come into a different category. They are not "average general medical practitioners" and many of them are quite at home—some, indeed, very much at home—in the atmosphere of a Law Court.

I am not now attempting to make the point that some doctors are apt to become nervous and confused in the witness-box—especially under cross-examination. That would be a very trite observation, and applies to many non-medical witnesses. Very many witnesses fail to do themselves justice—apart altogether from the question as to whether they do justice to the prisoner or to the litigant concerned.

What, however, I do very definitely consider to be the case is that many doctors fail to realise, or, at any rate, to keep constantly in mind, the fact that the actual verdict or decision of the court rests with laymen—jury or judge—and that it is only in so far as a doctor, when giving evidence, succeeds in impressing the inexperienced lay mind with the correctness and cogency or plausibility of his view of the facts, that he can be deemed to be performing a serviceable function.

A doctor may state his views in a manner—and bring forward facts in support thereof—which would carry complete conviction as to their accuracy in the mind of an impartial well-informed medical listener; but he will have accomplished absolutely nothing at all (except in cases where the Court is assisted by a Medical Referee) unless he has also succeeded in convincing the judge and/or the jury.

This fact may seem obvious enough; but, in my view, it is very frequently lost sight of.

In practical operation I would even go so far as to say that it is at least arguable that the resulting paradoxical conclusion may, in some cases, be arrived at that, from the point of view simply of securing a favourable verdict or issue, the more akin the medical knowledge of either the witness or the advocate is to that of "the man in the street" the better.

This proposition may perhaps by some be regarded as bordering on the grotesque, but I venture to suggest that the more it is analysed the truer it will appear to be.

Let me take a particular instance by way of illustration.

In a certain civil action for damages for personal injuries, in which great stress had been laid by the counsel for the plaintiff upon adequate compensation being awarded by the jury in respect of a certain definite form of pain of which the plaintiff had complained ever since he had sustained his injuries, a very distinguished neurological surgeon was called as a witness for the defence, and he stated that, in his opinion, the pain complained of was functional and not organic in origin.

Counsel for the plaintiff thereupon proceeded to cross-examine the said surgeon upon the following lines: "Is not an organic pain felt by the sufferer by means of the brain and spinal cord?"—"Yes."

"Is not a functional pain felt similarly by means of the brain and spinal cord?"—"Yes."

"Are not both forms of pain, therefore, equally 'real' to the sufferer—whatever their origin might theoretically be?"—"Yes," after considerable hesitation and manifest embarrassment.

The impression made upon the jury by this method of cross-examination, administered by a cool self-possessed K.C. was, apparently, that the expert witness was unduly (possibly unfairly) seeking to belittle and whittle down the nature of the unfortunate injured plaintiff's disabilities.

Yet, in truth, as all medical men would agree, the distinction between organic and merely functional complaints is one of vital and primary importance, and ought to be definitely borne in mind, if a correct appraisement of the nature of the case is to be arrived at.

Thus it may well, and in fact does, come about that fallacious and meretricious points in a case are brought out and emphasised, for the express purpose of influencing the inexpert lay mind, and, if the counsel concerned is himself equally ignorant, he can engage in this form of advocacy with telling effect, with sincerity and without humbug.

If, on the other hand, the counsel engaged in the case be possessed of genuine medical knowledge,—even if he be only specially "coached" beforehand for the purposes of the particular case by a medical adviser—he is liable to be actually handicapped by the possession of such knowledge.

Fallacious, but none the less plausible points or arguments, which might carry great weight with a non-medical and ignorant judge or jury, either do not occur to him at all, or, if they do, he then has to settle it with his conscience whether or not, for the purpose of securing a favourable verdict, he can see his way to employ fustian-like devices.

Similarly, I have seen cases in Court in which a medical witness, with exceedingly limited knowledge and slender medical qualifications, has, in consequence of his very limitations, been able to cut a much more serviceable figure in the witness-box than his more talented and experienced colleague called in the same case by the opposite side, or, possibly by the same side.

To a jury—and for that matter to some judges—an F.R.C.S. and an L.S.A. are equally doctors and experts.

Let us see how this works out in practice.

Take a case where a plaintiff seeks damages or compensation for an alleged injury to his knee-joint.

A raw medical practitioner of the rule-of-thumb type is called for the plaintiff, and he very convincingly tells the jury that "of course, the knee-joint must be affected, since the plaintiff has pain in it." Here is a clear and definite witness, whose straightforward downrightness obviously impresses the jury. He is a man who knows his own mind—does not hedge his evidence about with qualifications and contingent possibilities—and is therefore a man whose views can be relied upon and given weight to.

After him, a much more learned and experienced and judicious medical man is called for the defence—or, it may be, perhaps, as an additional witness for the plaintiff.

He, with his superior knowledge, feels it incumbent upon him to state, either in examination-in-chief, or in cross-examination, as the case may be, that there are such things as "referred pains," and that, for instance, a man may feel pain in his knee, owing to stone in the kidney, when the knee in fact is quite sound. Hence, mere pain in the knee, without confirmatory signs or symptoms, is not conclusive of there being something wrong in the knee-joint itself.

In other words, it is an ambiguous symptom.

It is easy to see how an adroit Counsel can make play with such a so-called "shuffling" and indeterminate reply as this, and draw a contrast between the clear and precise answers of the first doctor, and the "unsatisfactory" and vague answers of the second doctor, much to the discomfiture of the latter, in the eyes of the jury—and possibly of the judge.

All this would seem to indicate that Courts of Law should resort to the assistance of Medical Assessors much more frequently than they do at present, or, alternatively, that there should be "Medical Courts" to try medical issues, just as there is an Admiralty Court and a Commercial Court for the trial of nautical and commercial cases respectively, and that a limited number of judges with medical qualifications should be specially appointed.

Except for Lord Finlay—whose judicial post, incidentally, was not that of judge of a Court of first instance, but was that of Lord Chancellor—I think it is true to say that no medical man has ever been appointed a High Court judge.

In support of this suggested reform, I would venture to recount an instance within my own personal knowledge and hearing, and in which I was concerned, of the manner in which a certain High Court judge dealt with a case relating to alleged contamination of milk by typhoid bacilli.

An undoubted outbreak of typhoid fever had occurred, and several deaths had taken place therefrom, in a certain locality.

There was strong reason to suspect that the focus of infection was milk distributed from one particular farm. An action for negligence was brought against the farmer by the relatives of certain victims.

In the course of the trial, one of the Counsel for the plaintiffs,—not myself—naturally stressed the vital importance of taking all reasonable precautions to protect milk from contamination, and pointed out how widespread might be the resulting damage inflicted, if infected milk were distributed wholesale.

In emphasising this latter aspect of milk-production and milk-supply, Counsel even went so far—though no medical man would consider that he went at all too far—as to imply or say that, in the handling of milk, distributors should use as much care as if they were handling explosives—seeing that careless dealing with milk might cause just as much harm to the community, or to individuals, as reckless handling of explosives.

Thereupon, the judge, whose views in regard to milk were apparently akin to those voiced by the author of "The Ingoldsby Legends" when he used the phrase "mild as the milk which dews the soft whisker of the new-weaned kitten," interrupted Counsel and suggested that he was using language of absurd exaggeration.

The plaintiffs lost their case.

This very same High Court judge, a few years later, was party to a decision of the Divisional Court relating to milk contamination which—whatever may have been its strictly legal merits or demerits—has undoubtedly done more to hamper Public Health officials in safeguarding a pure milk supply to the public than any other single legal decision.

Malingering is naturally a subject of considerable importance from the medico-legal standpoint. Its detection is often very very baffling, and sometimes impossible of attainment. What, in this world, could be more inscrutable than "pain in the back" ?

It may be, and only too often is, very real and genuine, but it is manifestly so subjective a condition that its objective investigation—except in definite obvious cases of manifest injury, disease or tumour—is frequently well-nigh impossible.

Detection of malingering is, therefore, in many cases largely a matter of common-sense or perspicuity, and taking the subject unawares. Problems of alleged pain or stiffness of joints or defective vision have frequently been cleared up whilst the subject has been off his guard, whilst dressing after his examination; and a medical man who suspects malingering, may well bring his "horse-sense" to bear in the elucidation of the problem.

One extraordinary case of malingering came some years ago under my observation.

A woman was admitted to hospital for observation with a view to possible operation for stone in the kidney. She suffered, apparently, from recurrent haematuria, both before and after admission to hospital. She complained of pain, and there was an operation scar on her back, which seemed to indicate a previous kidney operation.

The physician in charge of the case, for whom I worked, seemed sceptical about the patient's symptoms, and ordered that her urine should be drawn off by the use of a catheter. Whenever this was done, the urine was always free from blood.

Eventually, the patient confessed that she had surreptitiously, on numerous occasions, pricked her vagina with a pin, with the express purpose of producing apparent haematuria.

Since the malingering in this case was only calculated to procure detention in hospital—with serious risk of a grave operation—it is difficult to perceive what adequate motive there can have been for the patient's duplicity.

In one instance of alleged total blindness—resulting from accident—the patient was asked to pick up a wax vesta from a darkly-stained floor. He groped about for some time all round it, but failed to find it.

The patient had alleged other disabilities and, for the examination of these, he had been asked partially to undress.

Upon being told to dress himself again, the patient quite naturally, and without the least hesitation, stooped down and picked up a black safety-pin which he had been wearing, which the examining doctor had purposely, but surreptitiously, pushed from the table on to the floor.

A converse case of reversed malingering was one in which an applicant for life insurance stripped himself to the waist for the purposes of the insurance company's doctor's examination, and placed his hands akimbo on his hips and said "Am I not a fine fellow?"

The doctor passed him as a first-class life—only to be severely censured a few months afterwards by the company for having passed a man, suffering from cancer, who actually had a colotomy wound—which he had hidden by one hand placed over it, at the time of the examination.

Perhaps the most dramatic and also humorous instance of well-conceived detection of malingering was that which occurred in a case many years ago, in which the late Lord Birkenhead—then Mr. F. E. Smith—appeared as Counsel for the defendant.* The plaintiff alleged that ever since a certain accident he had been quite unable to raise his right arm above the level of his shoulder. Mr. F. E. Smith asked the plaintiff in the witness-box to shew to the Court exactly how high he could raise his arm. The plaintiff, apparently with great difficulty, just raised the arm to the level of the shoulder and no further, and then let his arm drop to his side. Counsel then, in an ingenuous and sympathetic manner, asked the plaintiff how high he could raise his arm before the accident. The plaintiff, thereupon, quite off his guard, unwittingly shot up his arm quickly to its full height, and thereby dismissed his own case.

In regard to drugs, their properties and action, it is perhaps superfluous to remark that, in legal medicine or medical jurisprudence, one never knows how suddenly or upon what occasions, a knowledge of them may be requisite.

Appropriate use of antidotes, in cases of poisoning, usually has to be resorted to with the briefest possible reflection. One either has, or has not, got the knowledge in one's mind, when it is called for.

I shall never forget one instance in my experience as deputy coroner, in which it so happened,

---

[* Birkenhead," by his son, p. 116.]

by unexpected good fortune, that I almost unconsciously—as it turned out—was aware of a certain property appertaining to morphia, ignorance of which would have placed me in an awkward dilemma.

I held an inquest upon a certain woman whose skin shewed innumerable punctures with a hypodermic needle, and evidence was given to the effect that, for a long period, she had been a victim of the morphia habit—which she practised solely by hypodermic administration.

The physician who had made the post-mortem examination gave evidence to the effect that death was due to morphia poisoning; but, in describing his examination of the organs of the deceased, he mentioned the finding of a considerable amount of morphia in the gastro-intenstinal tract.

I did not cross-examine the medical witness, as no discrepancy between the lay and the medical evidence occurred to me. I summed up to the jury, and a verdict of death from self-administered morphia was returned.

Afterwards, an inspector of police came to me, and asked, naturally enough, how there could possibly be morphia present, after death, in the bowels—if morphia had only been administered subcutaneously.

When thus, suddenly, confronted with the question, I was slightly embarrassed, because I had not consciously and definitely put this question previously to myself, nor had I mentioned the point to the jury. Fortunately, however, I was able to extricate myself by replying that the explanation was that morphia—however administered—was excreted by the bowel.

I very shortly afterwards mentioned this incident to a medical friend, and asked whether he did not agree as to this method of morphia excretion by the body. He, somewhat cynically, observed that he did not know whether morphia was excreted gastro-intestinally or not, but that, in any case, my answer was clearly the right one to give to the inspector in the circumstances.

I can only say that my reply was made in the utmost sincerity, and I subsequently confirmed, upon reference to text-books, that my recollection of the relevant toxicology in regard to this point, learnt in student days, was, as it so happened, not inaccurate.

F.O.A.

Let the Patient Talk.

We are all familiar with the troublesome type of patient whose descriptions of his ailments are unending, or, at least, so long that no practitioner has ever had sufficient time to listen to the whole. None the less, histories may be time-saving, even life-saving. I wish to emphasise the value of what we used to do in the way of taking "histories" when holding House jobs.

A young woman was admitted into hospital from a sanatorium where my chief had seen her. Being told that she had fluid in the left side of her chest, I explored; but found none. After a short interval I repeated the exploration and met with the fortunately rare experience of sudden collapse and death of the patient. To my chief's astonishment the notice which he received of the P.M. was that of a case of bronchiectasis. We all gathered in due course to view the condition of the lungs. There was no evidence of tubercle, and everything to support the diagnosis of bronchiectasis. The correct diagnosis had come, as a matter of fact, from the deceased patient. She had told me, when taking her history, that her own doctor had made this diagnosis years before.

The above is an exceptional instance, but here is one that is common and of which the diagnosis is commonly wrong. I refer to the patient who vouchsafes the information that he has "strained his back." He then proceeds to mention the arduous character of his work. If you will get him to describe minutely the exact sequence of events leading to the onset of pain you will find that he was only just about to do a thing when the pain struck him; or that he was only doing what he had done thousands of times before, and that no untoward incident occurred to precipitate the pain. So by exercising a little patience we get a history suggestive of the diagnosis of acute fibrositis, and not of strained back.

For many such reasons I like to hear my patients tell their own tale, and often, at the end of the narrative, I feel a probable diagnosis can be made.

N.A.B.

Research in General Practice—A Plea for the Study of Heredity in Man.

Medical research has many varied branches; clinical, pathological, statistical. Effective results are obtained by specially trained workers who adhere to all the canons of scientific method either in experiment, observation and recording, or in statistical enquiry. Measurements, tests and controls are the means for checking fallacies, and for this purpose laboratories with complicated apparatus and instruments are necessary. This side of medical research is wholly outside the sphere of general practice. But this does not mean that the general practitioner may not have a sphere peculiarly his own in which he may conduct research of the highest value and make solid contributions to the advance of knowledge.

In what direction does this field of research lie? Is it in the domain of clinical investigations, observing and recording the effects of disease processes in the living subject and so learning to distinguish various signs and symptoms on which to base diagnosis and prognosis ? The general practitioner can make and has made contributions to knowledge in this field, but the phenomenia of disease in the living subject are complex and elusive and only very gifted individuals like the late Sir James McKenzie in his notable work on Diseases of the Heart(1) have been conspicuously successful here. The history of medicine shews that in the separation and classification of diseases many generations of practitioners pass on even before one type is distinguished from another, as for example, typhus from typhoid fever or the primary from the secondary anaemias. If then it is difficult for the general practitioner to make valuable and lasting contributions in the field of clinical investigation, in what other direction may his efforts be more successful?

Surely this must be in the field of therapeutics. Long and varied experience in the treatment of complaints and diseases might be expected to offer a rich store of facts on which the general practitioner could draw in order to make some useful additions to existing knowledge. Alas, there is little record of achievement even in this field. Probably the most important was the introduction of digitalis for dropsy by Withering, who had the sense to pay attention to the popular reputation of foxglove for this disorder, and to give it a trial in large numbers of cases under his care.(2) With the exceptions of mercury in syphilis and quinine in malaria, almost all other specific drug treatments are either the result of laboratory experiment or of controlled clinical work in hospitals. Examples of such treatments are antitoxin in diphtheria, emetine in amœbiaisis, liver in pernicious anaemia and insulin in diabetes. Apart from these the general practitioner has experience in the value of the various expectorants, stomachic mixtures and laxatives, whose value he appreciates partly from experience and partly from tradition; but he has added nothing of real importance in the sphere of drug therapeutics. Surgical treatment has evolved from the practice of specialists, and in this field the most the general practitioner surgeon has done and can do is to follow the practice and technique of the specialists. So far as the past shews, little can be expected from the general practitioner in advancing either drug or surgical therapeusis. Is it possible to do something and add to knowledge in the realm of psycho-therapy? Here I believe the general practitioner can do much; but medical psychology is a difficult science and unless it receives prolonged and intensive study by individuals gifted with a bent in this direction little of value can be expected in general practice. However, this is as yet an unexplored field and with a sufficient training in medical psychology general practitioners with patience and insight may be expected, not only to give good service to individual patients but to add considerably to existing knowledge in this important branch of curative medicine.

---

(1) MacKenzie's "Diseases of the Heart" (London, H. Frowde) was published in 1908. The other one hundred and sixteen books and papers by this family doctor, turned specialist, are set out in the Synopsis Bibliography of his works edited by Monteith (Oxford University Press).

(2) Withering "Account of the Foxglove," 1785.

In what sphere then, it may be asked, can the general practitioner be expected to make definite and valuable additions to existing knowledge?

To answer this one must consider a very essential difference between the practice of the specialist and that of the general practitioner. The specialist sees and deals with individuals, the general practitioner sees and deals with families. From this it would seem that the distinctive sphere of the general practitioner would lie in the observation of the familial diseases, and abnormalities. This should rouse his interest in the study of heredity. Now, heredity has become a vast subject with ramifications extending throughout the universe of living organisms, and a large amount of observational and experimental study has placed it on a fairly firm foundation as one of the most important branches of biological science. Experimental studies in plants and quick breeding animals have gone far to confirm the early mendelian theory of the segregation of characters in the fertilized germ cell, and studies of the germ cell itself have led to the formulation of the chromsome theory of heredity with its unit factors—the genes.

Studies in human heredity are outside the scope of experiment: they must be based on accurately recorded observations. During the past twenty years much work has been done in a great variety of diseases and abnormalities which have been traced through five or even six generations, but the great majority are limited to two, three, or four generations.

If a practitioner discover a disease or abnormality occurring in several members of one family; then if he wish to make a contribution to the study of human heredity, he must first diagnose the condition with precision—(if necessary he may seek corroborative opinion) and then record accurately its occurrence and non-occurrence in the members of the family. Affected and non-affected, age, sex, and order of birth should be shown clearly on a pedigree chart—the symbols of which are now standardised. He may be fortunate enough to observe the character in four living generations, but this is exceptional. Two or three living generations are sufficiently frequent to make a valuable basis for record, and actual observations may be supplemented by enquiries into the family history. If this enquiry should reveal collateral branches also affected, means should be taken to make actual observations on these members.

This procedure is fairly simple and clear for characters that are "dominant"—that is, characters that appear in the members of each succeeding generation similar to those of the parents, but there are characters equally hereditary and carried by the germ cells which may not appear in the parents yet be evident in the children or the converse. These are "recessive" characters. Such characters may be evident only in one generation, and in this type of case it is necessary to go into the family history with great minuteness and as far as possible to study collateral branches of the family. Then there are other characters which are sex-linked—that is, the character only appears in one sex. These are sex-linked dominants and sex-linked recessives. Further, these are characters which only appear after development is complete, and it is in such cases that the age of individuals is so important for record. Students of human genetics are deeply interested in records and life histories of identical twins. These are specially valuable in determining the influence of environment in the hereditary constitution.

All the recognised "systems" of the body have their hereditary diseases or abnormalities. The nervous system with its high degree of organisation is specially prone to display hereditary characters. In the psychoses both dominant and recessive characters appear. Schizophrenia and the manic-depressive psychoses both have a preponderant hereditary basis. Huntingdon's Chorea—a rare disease—is a dominant appearing in affected generations between the ages of 30 and 40. Mental defect and idiopathic epilepsy have also a distinct hereditary basis—recessive rather than dominant in nature. The special senses, especially vision, have a multiplicity of factors rendering these senses defective. An example of a dominant in defective vision is hereditary lamellar cataract; of a recessive,—retinitis pigmentosa. In hearing, a defect in the labyrinth or in the extensions of the auditory nerve to its inner lining would result in loss of hearing, and this or some other defect in the auditory apparatus is often transmitted as a dominant as seen in families of deaf mutes. In the hæmopoietic system fragility of red blood corpuscles is transmitted as a dominant as is seen in families with hereditary icterus, sometimes named acholuric jaundice. Hæmophilia is a sex-linked dominant. In the cardio vascular system, early thickening of the arteries and perhaps also hyperpiesis may be traced in families. The skin and osseous systems also present many hereditary diseases and abnormalities. Ichthyosis is an example of a skin disease, and polydactyly and brachydactyly abnormalities of the osseous system.

While the study of distinctive characters impresses the observer with the importance of heredity, it also stimulates the reflective faculty to consider the constitution of the human organism. Constitution may be defined as the sum total of the vital forces derived from the harmonious working of the organs in order that the whole organism may be maintained intact amid a changing or even hostile environment. In this reflection we are brought back again to the opinions and views of the old time physicians as to ''diathesis.'' But the modern study of heredity has given a new meaning to this ancient idea, in that it shows that ''diathesis'' or ''constitution'' is primarily a result of the constitution of the fertilized germ cell.

The gouty and tuberculous diatheses take on a new meaning. They represent a loss of something in the general constitution of the body which makes it resistant to a hostile environment. If the special environment is not present the results of this loss do not become apparent; but if the special environment is present then the signs and symptoms of gout and tuberculosis become manifest, and it is well known that the members of certain families are specially prone to these diseases.

But it is not only in clinical medicine that the study of heredity is becoming important, as the signs of the times show its influence is being extended to public or State medicine. If the report of the Departmental Committee on Sterilization is translated into law, then it will become imperative for general practitioners to take a special interest in the problems of human heredity.

J.S.M.

A Note on Note Taking.

"The little things . . . are soon forgotten. If you delay to enquire you will have no information, if you neglect to write, information will be in vain." So wrote the great Dr. Johnson to his friend Langton in the year 1766, and no better text could be desired by anyone who wished to write of the value of keeping notes in medical practice. For it is the little things which distinguish diseases as well as characters, and it is the recognition of the value of the little things which is so supremely needed in medicine to-day. It is at times difficult even to remember whether it was Jimmie or his brother Tom who had his appendix removed, and still more whether there were adhesions present at the operation or not. Yet such things are large compared to the minor symptoms and ailments which baffle us, and which we mentally resolve we will watch and see what becomes of them. Note-taking should, as far as possible, record these little things. Even the finest memory may fail at times, as mine largely did after a severe motor cycle accident, and "if you neglect to write, information will be in vain."

The difficulties in the way of keeping notes are mainly two, lack of time and lack of system. As to the former, every doctor must decide for himself how much time he thinks it worth while to spend on keeping records, not forgetting that a timely note, made in a few seconds, may save an enormous amount of time and worry later on, as well as actually proving of decisive value in legal cases. The lack of system is an even more formidable obstacle, and it is the hope of providing some help in this direction which has induced me to make this contribution.

Of the many systems which are in existence some are admirable for a single disease but have no space or aptitude for a continuous health record. Others are obviously only for specialists; some take too much keeping up. Flexibility and adaptability seem the great desiderata which are lacking. After much cogitation I devised the following plan which has proved quite satisfactory during several years' use. While first adapted to the loose leaf system, I think that the card index is easier to work, and therefore more likely to be worked. The page is large, but it can be cut down if desired with a corresponding diminution of space, and the captions can also be altered or reduced in number to suit individual requirements. This would not affect the idea behind the system which is quite simple and really does work well. On one side of the sheet are the usual headings for name, address, etc., with one or two not so usual but quite valuable. These are followed by a list of the various organs or systems of the body. The idea of these is simply to act as an index to the other side of the page where the matter can be detailed at any length desired. For example, under "Cardio-vascular" one might put "Mitral bruit Nov. 1928. Pericarditis Feb. 1930," etc., all the other detail being on the other side of the page, which is plain ruled with two anatomical diagrams. As the index gets filled up you have on the front page a concise summary of what you have observed, any previous history being put under "Personal History." At the same time, as some headings get filled up and others keep vacant, one begins to get a really valuable conspectus of the patient's weak points and to lay a reasonable basis for the study of diathesis. All this without any overcrowding, yet with a wealth of detail—if desired—on the other side or in continuation sheets. The space for symptoms is likely to become increasingly valuable as it gets filled up with the host of subjective phenomena which cannot at the moment be traced to their proper source.

Such a system is flexible enough for anyone, though it is not exactly portable. It is, however, ready for use at any time, with a nitch for anything to be easily recorded in a minimum of time, yet yielding up its information at a glance. To make it complete as an instrument of research it should have three small indices, one for diseases, one for symptoms undiagnosed and one for special treatments given, against each entry being noted the name of the patient and the date. In this way the results of any particular treatment, the sequel of any particular symptom or the cases of any disease can be easily collated and compared.

All this is very easy to write, but it is admittedly not so easy to practice. The general practitioners of this country hold between them an enormous wealth of clinical experience and wisdom. At present this is individual, inarticulate, unconvincing. I am convinced that systematic note-taking on some such lines as I have indicated will not only clarify our ideas but add weight to our opinions. Probably, in the long run, few things would more usefully increase the knowledge of medicine or more effectively enhance the value and status of our profession. "'Tis not in mortals to command success" but we can at least deserve it here in Cheshire.

ADDRESS and NAME ....

BORN.................. S.M.W. CHILDREN ....

Occupation and Habits ....

Distinguishing Marks ....

Family History ....

....

Personal History ....

....

Personal Topics ....

Idiosyncrasies ....

Special Examinations or Treatment ....

Temperature ....

Skin, Hair, Nails ....

Tongue ....

Teeth ....

....

Throat ....

Lymphatics ....

Pulse ....

Blood Pressure ....

Cardio Vascular System ....

....

Respiratory System ....

....

Abdomen ....

....

Bowels ....

Genito-Urinary System ....

Urine ....

Blood ....

Nervous System ....

Bones, Muscles, Joints, etc. ....

Nose ....

Ears ....

Eyes ....

Endocrinology ....

....

Diet ....

....

Weight ....

Symptoms ....

....

....

W.N.L.

The Ambulance Teaching of Artificial Respiration.

In dealing with Artificial Respiration the St. John handbook says, ''When natural breathing begins, regulate the artificial respiration to correspond with it, and promote circulation by rubbing the limbs energetically towards the heart.''

The Red Cross handbook and the St. Andrew's Ambulance Association handbook both recommend rubbing of the limbs (by a helper if there is one) from the beginning. The problem arises: when should this rubbing be started ?

When breathing has ceased for a dangerous length of time two things happen: (1) the area of circulation becomes limited. As long as there is a circulation between the heart, the lungs and the medulla, the patient will be alive. (2) In this limited area of circulation the blood is becoming more and more venous. In the limbs at this time the blood is also venous but is not circulating.

When we perform Schäfer we put air into the lungs and gradually the blood circulating in the vital area—heart, lungs, medulla—becomes less and less venous. If our movements are successful the patient will sooner or later take a breath. It seems that the aeration of this limited area of circulation has stimulated the medulla.

If this is sound reasoning does it not settle the question as to when rubbing of the limbs should be started? If begun at once, we shall flood the limited vital area of circulation with more venous blood and our Schäfer movements will not enable the lungs to meet the demand made upon them. Therefore the rubbing should not be begun till the patient has begun to breathe. And even then it should be done gradually and easily at first, rather than vigorously.

R.W.

Rural Sanitation.

Mine is an ordinary rural practice. In 50 years I have come across only one Typhoid case, and that was 45 years ago.

This shews the vast improvement in sanitation and the good water supply.

I have had no cases of disease contracted from animals with the exception, of course, of ringworm and a few cases of bovine tuberculosis.

S.W.F.

The Prevention of Epidemic Diphtheria.

Diphtheria stands out as the disease which causes the most anxiety, shocks and regrets: its tragedies are so sudden, often so surprising, perhaps because there is always the feeling that no one should die of a complaint as easy as this to treat.

The one thing needful is serum in adequate doses and there is little difficulty about that. The real difficulty is early diagnosis, not to be avoided by reading text-books, for many are definitely misleading in describing diphtheria amongst "acute infectious diseases" without adequately stressing the fact that an acute onset comparable with that of scarlet fever is rare. Many cases develop deceptively, because gradually. They thus misguide the young practitioner. A patient with a non-membranous sore throat, who is not at the time anything like so ill as many ordinary tonsillitis cases, does not prepare him for what is to come. There must be few doctors who have not been deceived by such cases. Even men who hold resident appointments in fever hospitals only see diphtheria hours after someone else has been able to diagnose it. They may never have realised how very little general illness there was about those hospital cases 24 hours before admission.

Another diagnostic difficulty manufactured by books and teachers is their unfortunate doctrine that practically every case of laryngitis in a child is diphtheria. This mistake is quite understandable because it is almost true of the cases such teachers see, namely, those rushed into hospital for tracheotomy, but the well-meant caution defeats its own object because every general practitioner soon finds that of the cases he sees it is not true. Probably all of us can recall the first case we saw of slight laryngeal obstruction with a brassy cough, in which, after worrying as to whether we had been justified in temporising for a few hours we called again and found the laryngeal symptoms gone and the patient obviously starting with an ordinary bronchial catarrh. Having found their teachers' dictum inaccurate, some men tend to forget the little very important truth it contains, for "in every case of laryngitis in a child assume diphtheria" let us substitute "see every case of laryngitis in a child again in two or three hours, and if it is not better give serum and be on the safe side."

In the Bucklow Rural and Knutsford Urban Districts, of which I am (part-time) M.O.H., we not only pay the laboratory fees for swab examinations, but also pay a fee of 5s. to every practitioner for every swab he forwards to the laboratory. This has led to interesting results, as follows:—

(a) Cases which the most highly competent practitioners want sent into hospital, without waiting for the swab report, because they are quite certain from clinical appearance the case is diphtheria and a bad one, are removed. The doctor's swab is reported negative and no positive swab is obtained while the patient is in hospital.

(b) Equally competent, indeed the same, doctors ring me up to say they have a positive report of a swab from a case they only swabbed because they now swab all, and are annoyed to get the positive report. These cases are of course removed to hospital instead of going about as carriers of infection for two or three weeks.

(c) Nothing amounting to an epidemic has occurred in either of these districts since these fees became payable and large sums have been saved in hospital maintenance in addition to the obvious saving of suffering, loss of time and life.

It is thus proved that no doctor can tell by clinical examination whether a patient has or has not got diphtheria. This is especially true of the cases seen early when, though the signs are least, the effect of the antitoxin is greatest. Therefore it follows that all cases should be swabbed.

It is also evident that there is no possibility of abuse in connection with paying these fees for swab-taking. We want all cases swabbed. It is amongst the cases which nine men out of ten would not dream of swabbing, apart from being convinced by the fact that we are willing to pay for it that we want it done, that we find the slight case. If that had not been recognised it would have spread infection far wider than the bad case. The bad case would be in hospital, or at least in bed, whereas the mild case would have gone about as usual, broadcasting Klebs-Löefler.

Treatment is easy when a positive diagnosis has been made; but what is one to do about serum before the swab report comes? This is a real difficulty in practice. It cannot be got over by advice from books or teachers to give serum in every doubtful case. As we have seen, every case of sore throat is possibly diphtheria. It is not practicable to give serum to everyone with a sore throat. To Medical Officers of Health who urge this plan it may be replied that the cost in free serum would give their Councils furiously to think. As in so many medical matters there is not, and there cannot be, an universally applicable golden rule. The practitioner has to judge each case on its merits. It is a hard task and, being only a part-time M.O.H. and therefore having some practical experience of the real difficulty of deciding on the right course under the actual conditions met with in practice, it is in all humility I venture on the following suggestions:—

(1) Do not hesitate to regard a case as diphtheria because the throat does not present the text-book description, covered with thick membrane, etc. When that occurs the case is an advanced one.

(2) If you think a case is diphtheria, remember your opinion is as good as anyone's, as no one can be certain, and give serum without waiting for the report on the swab.

(3) In a young child, especially if there be any cervical swelling, give serum at once, because acute simple tonsillitis is not very common in tiny children and in such there is no time to lose.

(4) In older patients, seen really early, where you do not think the condition is diphtheria and if you can get a swab reported upon within 24 hours, you may justifiably wait.

(5) In older patients seen on the third or fourth day who are still going worse, give serum at once, because they are already near the end of the time when it is really useful.

(6) In these older patients seen rather late, who are already definitely improving, or in a healthy patient going about with what appears to be a very typical follicular tonsillitis you are not, in my opinion, called upon to give serum; but swab these and all cases; it will probably not be long before some unlikely cases surprise you with a positive report. By obtaining that, you will ensure isolation and prevent an epidemic.

Although we have a cure for diphtheria, an epidemic usually means some deaths because the disease is deceptive enough to mislead even the best of us. Besides these deaths from misdiagnosis there are the fatalities in the small children whose feverishness is put down to teething until just before the doctor is called in, too late! These children are too young to be likely to have been out visiting the sick. It is likely they are infected by callers suffering from mild diphtheria. If swabbing were more general for trivial sore throats these carriers would have been recognised.

Finally, I want to urge this payment for taking swabs upon Medical Officers of Health and Local Health Authorities. In Bucklow and Knutsford incidence of diphtheria has for years past been reduced about 50 per cent. by it, and this figure would be about 75 per cent. but for the fact that districts adjacent to Bucklow do not take this precaution. In many of our cases (all but one this year) the infection comes from outside our area. Prevention is supposed to be the chief duty of Medical Officers of Health and Local Health Authorities and it is lamentable that while all the authorities will provide hospital accommodation and free serum when a patient is ill, very few take this obvious first step towards ascertaining and eliminating the cause of the illness. It is quite true that most pay the laboratory fee for swab examinations: but this does not get the unlikely throat swabbed. It only relieves the patient of expense when the doctor gets a case he really suspects—that is he only uses it where it will help him in his treatment. More than this is required. The doctors must be asked and encouraged to take swabs, and paid for doing so, as a preventative measure in all cases, and not alone when guidance in treatment is sought.

A.T.B.

The Growth of Public Hygiene

Public health is not, as popularly considered, a modern innovation: it is in fact "ancient history." There is surprising evidence of hygiene as far back as 4000 B.C. shown by the high state of civilisation reached by the Sumerians, established in Babylon some time after 5000 B.C.

Excavations at Mohengo Daro and Haraffa in the Indus Valley and the Punjab have uncovered brick built cities of 4000 B.C., showing better sanitation than in some of our own Rural Areas. Not only did the houses have bathrooms, but a drainage system with socketed drain pipes by which the sewage was conveyed to tanks and thence removed by scavengers. Similar conditions were found at Kish by the Blundell Field Expedition. Excavations by Sir Arthur Evans have brought to light further evidence. In his description of the Palace of Minos (2000 B.C.) he reports the discovery of a remarkable water main made of terra cotta. It had collars and top ridges and each section was tapered thus giving a shooting motion to the water even better adapted for the prevention of accumulation of sediment than the water pipes of modern cities. It may be interesting here to note that it was not until 4000 years later that efficient earthenware pipes were reinvented in England.

On the river side of the Palace there was evidence of a combined method of getting rid of both sewage and surface water by means of large stone shafts, cement lined, which descended vertically from the upper stories. These opened into stone conduits which conveyed rain water to the drains and ventilated the sewers. The water closets resembled the modern wash out closet and always had water in the pan. Here again these ancients were in advance of some of our so called modern cities.

Disposal of refuse had also reached a high standard of efficiency—large stone lined pits being used for the disposal of the cities' refuse.

Evidence of one very early contribution to public hygiene comes from the Old Testament. In Leviticus can be found strict injunctions regarding unclean objects, proper foods, hygiene of child birth and menstruation and the prevention of contagion.

During the Egyptian period hygiene had reached a high stage of development. Even the benefits derived from health propaganda were not unknown, as is evidenced by the temple inscriptions promising health and long life to the clean and temperate. A ritual form of meat inspection was used before and after slaughter. This primarily preserved the purity of the sacrifice incidently it assisted public health, since rejected meat might not be eaten. Even the theory of innoculation against disease was not unknown to the Greeks. Dr. Arnold Klebs cites the following verse from the school of Salerno,—

> "In order that variola may not produce death among tender babes, put into their veins a favourable variola. Better still they should avoid touching the contagium of the disease."

These foundations already laid were carried on and perfected by the Greeks, as demonstrated by the excavations at Prienne, and later by the Romans.

The destruction of the Greek, and fall of the Roman Empires lost to mankind many of the noble beginnings of medicine and hygiene. For many centuries progress in public health was slow. Only within the last 100 or even 50 years can we claim to have made any noteworthy advance.

In order to realise and appreciate the development of public health during the past Century one has only to take up an early Victorian illustrated book . . . Dickens, illustrated by Browne for example and study the people depicted therein. One would be inclined at first to say that the artist had exaggerated, that these pock marked, vicious faces, these stunted and deformed bodies could not be typical. It is a fact, however, that these illustrations were true to life and show us what the people of our own country would be like to-day if it were not for public health activities.

The foundation of public health measures therefore cannot be dated from such isolated outbursts of Parliamentary legislation as confined plague stricken people in 1603 to their own homes and made compulsory the flushing of gutters and walling up of cesspools and the cleansing of infected houses, nor to the act for the rebuilding of London (1668) which contained important provisions as to breadth of streets, sewers, and the prohibition of noisesome trades. All modern progress actually dates from 1848 when the first Public Health Act embracing the whole of Great Britain (except London) was passed.

The passing of this epoch-making Bill may be credited to several causes. The principal one was doubtless the enfranchisement of the lower classes by the Reform Bill of 1832, followed by widespread agitation over the disease and misery caused by the industrial revolution. Epidemics of cholera and small pox added to the public discontent.

Then, as a spark to the magazine, came Chadwick's monumental survey of the sanitary condition of the people in 1842. It was he who perceived that pauperism and disease went hand in hand. It was this survey of Chadwick's which led to the Royal Commission on the health of towns and thence directly to the Act of 1848 which gave birth to the General Board of Health whose duty it was to carry out its prosivions. It is interesting to note that no doctor was appointed on the staff and that it only survived for 10 years. After that public health affairs were transferred to the Privy Council. The unmistakable call of the country for Government action was supported by the work of several investigators showing that much of the disease rife in the land was preventable. The Poor Law Commissioners drew attention to preventable disease as a cause of pauperism. It was pointed out that half the expenditure on Poor Law, some £9,000,000, was thus caused.

In succeeding years Arnot, Kay, Smith, Littlejohn, Simon and others reinforced the call for preventive measures in their reports to the Home Secretary on preventable causes of fever and sickness in London. Above all, in 1841 Farr began to present to Parliament his cold and convincing stream of statistics.

Many minor acts were passed between 1848 and 1875. The main enactments were the Sanitary Act of 1866, the passing of which was facilitated by Simon's report on the severe outbreaks of cholera which occurred during that year, and a few years earlier, due to the drinking of polluted Thames water,—the death rate was 130 per 1,000—and the

Act of 1872 which was a result of the commission set up by Mr. Gladstone two years previously. Under this Act separate Health Authorities were established all over the country. In the year 1875 all the best measures on Public Health were gathered together into one great comprehensive Act with an additional provision which made the appointment of Medical Officers of Health compulsory.

The years since 1875, as Sir George Newman states, "have proved themselves a golden age of medicine, with which no previous similar period can compare and they have laid some new foundations of Preventive Medicine." The last clause is the important one. In future times men will regard this period as all important, not so much for its triumphs of treatment as the birth of the new idea of prevention. A doctor should not merely make sick people well: he should prevent them becoming ill.

Public health functions were carried on by many different Authorities and overlapping took place. Although in 1871 the Local Government Board was formed to bring together the various public health functions, it continued to be the practice of Parliament to create new authorities for different purposes. This overlapping was to a great extent eliminated by the formation of the Ministry of Health (and the Scottish Board of Health) in 1919. To it were transferred all powers and duties of the Local Government Board and Insurance Commission, all powers of the Privy Council under the Midwives Acts of 1902 and 1918, and powers hitherto exercised by the Secretary of State under Part 1 of the Children's Act 1908. All other matters relating to the health of the nation (including housing) came under its jurisdiction. That this was a great step forward is shown by the benefits which have accrued from its establishment.

There still remained the Guardians. The McLean report recommended their total abolition and that treatment for the sick poor should be provided under the Public Health Acts. These recommendations have been adopted by the Local Government Act of 1929: another step towards unifying health services. The outstanding feature of this Act in regard to health was the transference of the functions of each Poor Law Authority to committees of the County and Borough Councils, i.e., the Public Assistance Committee. It was also necessary under this Act for each Council to make a declaration as to particular forms of medical relief which could be given under services other than Poor Law, thus bringing us nearer than ever to the complete abolition of Poor Law.

In order to illustrate the improvements made in recent years the following statistics may speak. The death rate in 1871—80 was 21, in 1932—12 per 1000. The Infantile Mortality rate has been brought down from 127 to 65 in twenty five years. In 1875 Enteric Fever accounted for 370 deaths in each million, in 1924—12. In 1875 Typhus killed 1,500 people in England and Wales—in 1924 only 5. In 1847 the death rate from consumption was 3,189 per million, in 1875—2,313, and in 1924 it was only 801. Small pox was a national scourge a century ago. To-day, as Sir George Newman says, "it is the perquisite of those who elect to have it."

The part of the public health official is difficult because of the inertia of the ignorance and superstition which handicap the poorer classes, because of the greed of some who will accept anything given to them except good advice and because the very poverty of the people often drives them to work when they should be in bed. Through the Medical Officer the light of knowledge can come to the masses. If the doctor or nurse can gain the confidence of but a few of the men and women in the district that task will begin to grow easier.

I. MacK.

WELLCOME LIBRARY INSTITUTE

BRITISH MEDICAL ASSOCIATION LIBRARY
27 SEP [illegible]

LIST OF AUTHORS.

Key to Initials.		Contributions.
A.A.	Alfred Adams M.D., Ch.B., D.P.H. L'pool. Medical Superintendent, Liverpool Sanatorium, Delamere.	xxx.
G.A.	Garth Apthomas M.D., Ch.B. Edin., D.O.M.S. Lond.	xlii.
F.O.A.	Fredk. Octavius Arnold M.A., M.D., B.Ch. Cantab., M.R.C.S., L.R.C.P., Barrister-at-Law, Solicitor.	lviii.
E.B.	Ernest Castleigh Bailey M.B., B.S. Durh., L.S.A.	iii.
A.B.	Anthony Bennett M.R.C.S., L.R.C.P	liv.
A.T.B.	Arthur Torkington Blease MB., Ch.B. Vict., M.R.C.S., L.R.C.P.	lxiv.
N.A.B.	Norman Alex. Boswell M.B., Ch.B., Birm., M.R.C.S., L.R.C.P.	xix & lix.
H.E.B.	Harry Edward Bower, J.P. M.D., C.M. Edin.	vi & vii.
B.B.	Bernard Bowman M.B., B.Ch. Manch.	lvii.
T.M.B.	Thomas Milnes Bride M.D., Ch.B., Manch.	xl.
R.H.G.H.D.	Robert Henry George Hector Denham M.D., Ch.B. Aberdeen, D.P.H. Aberdeen.	xv.
O.M.D.	Ogilvie Maxwell Duthie M.D., Ch.B. Manch.	xliii.
E.S.E.	Ernest Sandford Evans B.A., Cantab., M.R.C.S., L.R.C.P.	ii.
J.A.E.-J.	John Arthur Eyton-Jones L.S.A., L.R.C.P.	v.
S.W.F.	Samuel Walker Foster M.B., C.M. Edin.	lxiii.
W.R.J.G.	Wm. Robert Jas. Garson M.B., C.M. Edin.	xxiv.
A.C.G.	Alexander Campbell Gillies *Co-author with Robert Proudfoot.* B.Sc., M.B., Ch.B., Edin., F.R.C.S. Edin.	xvi.
T.G.	Richard Trevor Goodyear M.A. Cantab., M.R.C.S., L.R.C.P.	xii.
E.C.G.	Edmond Christopher Goold M.B., B.Ch., B.A.O., N.U.I.	xxv.
G.H.	Godfrey Heathcote *(of Hale)* M.B., Ch.B. Vict., Assistant School M.O., Salford.	lvi.
J.B.H.	John Brierley Hughes, M.B.E. M.A., M.B., B.Ch. Cantab., M.R.C.P., L.R.C.P.	xvii & xxvi.
D.J.G.J.	Donald John Gair Johnston M.B., Ch.B. Aberdeen, D.P.H.	xxxiv.
V.L.	Victor Francis Lambert C.L.M. Vict., M.B. Manch.	l.

W.N.L.—	Walter Norman Leak M.A., M.D., B.Ch. Cantab., M.R.C.S., L.R.C.P.	xxiii. lxi. & xlviii.
J.P.L.—	Joseph Peter Lowe M.A. Oxon., M.B., Ch.B. Vict.	lii.
I.MacK.—	Ian Campbell MacKay M.B., Ch.B. Edin., D.P.H. Edin., M.O.H. County of Cheshire.	lxv.
M.J.M.MacL.—	Mary Jane Mowat MacLaren M.B., Ch.B. Aberdeen.	li.
J.S.M.—	John Sinclair Manson M.D., Ch.B. Edin., D.P.H. Vict.	lx.
R.J.M.—	Robert Francis Joseph Martin M.B., Ch.B. L'pool.	xlvii.
T.H.M.—	Thomas Hartley Martin M.B., Ch.B. L'pool.	xxxii.
R.H.M.—	Richard Howard Mole *(of Bebbington).* B.A. Lond., M.D., Ch.B. L'pool, Pathologist Royal Southern Hospital, Liverpool, and of Birkenhead and Wirral Children's Hospital.	xiii.
G.A.M.—	Gerald Alfred Moulden M.B., Ch.B. L'pool.	xliv.
J.B.M.—	Jerome Bernard Murphy B.A., M.B., B.Ch., B.A.O., N.U.I., D.P.H. L'pool.	xxvii.
G.R.M.—	George R. Murray, D.L. *(of Mobberley).* M.A., M.D. Cantab., Hon. D.C.L. Durh., Hon. M.D. Dublin, F.R.C.P., Emeritus Professor of Medicine, Victoria University, Manchester.	iv.
R.A.N.—	Robert Andrew Neill M.B., Ch.B. Glas.	xxviii.
H.W.N.—	Herbert Walter Nott *(Late of Little Sutton),* M.R.C.S., L.R.C.P.	x & xi.
G.O.—	George Okell, J.P. L.R.C.P.I.	ix.
R.O.—	Robert Okell B.A. Oxon., M.R.C.S., L.R.C.P.	xviii.
H.L.P.—	Heslop, Laird Pearson, J.P. M.R.C.S., L.R.C.P.	i.
H.P.—	Huntley, Nevins Pelly L.R.C.P., L.R.C.S., Edin., L.R.F.P.S Glas., D.T.M. L'pool.	xxix.
L.J.P.—	Lionel James Picton, O.B.E. M.A., B.M., B.Ch. Oxon., L.R.C.P., L.R.C.S.	xxi, xxxviii & xlvi.
R.P.—	Robert Proudfoot *(Co Author with Alexander Campbell Gillies),* M.D., C.M. Edin., D.P.H. Vict.	xvi.
R.G.—	Graham Renshaw M.D., Ch.B. Vict., L.R.C.S., L.R.C.P., L.S.A.	xxxix.
B.P.R.—	Brian Powell Robinson M.B., Ch.B. Manch., M.R.C.S., L.R.C.P.	xlix.

E.L.S.	Ernest Littleton Sandiland M.B., Ch.B. Lond., M.R.C.S., M.R.C.P., D.P.H., R.C.P.S. Lond., Medical Superintendent, East Lancashire Tuberculosis Colony, Barrowmore Hall, Nr. Chester.	xxxv.
G.S.S.	Geo. Stewart Smith (*of Bowdon*), M.D., B.Ch. Manch., Assistant Pathologist, City of Manchester Hospitals.	lv.
A.V.S.	Arthur Vernon Stocks (*of Altrincham*), M.A., B.Ch. Cantab., M.B., Ch.B. Vict., Assistant County Medical Officer of Lancashire.	xxii.
H.G.T.	Hugh George Trayer B.H. Dublin, M.B., B.Ch., B.A.O., L.M. Rot. Hosp., Dublin, D.P.H. Manch., Medical Superintendent, Baguley Sanatorium.	xxxiii.
R.T.T.	Richard Timmis Turner, J.P., T.D. M.D., Ch.B. Vict., D.P.H. Vict.	viii, xxxi, xxxvi, xxxvii & xlv.
H.M.W.	John Henry Milnes Walker M.B., B.S. Lond., M.R.C.P., F.R.C.S.	xx.
J.W.	John Wharton M.A., M.D., B.Ch. Cantab	xli.
J.G.W.	Jack Gardiner, Wigley M.A., B.Ch. Camb., F.R.C.S., L.R.C.P.	liii.
J.W.	John Frederick Wilkinson M.D., M.Sc., Ph.D. Manch., M.R.C.P., F.I.C.	xiv.
R.W.	Richard Wyse, M.B.E. M.A., M.D. Edin.	lxii.